



GREEN AUDIT

2021-2022



Maratha Vidya Prasarak Samaj's

**Arts, Commerce and Science College,
Nandgaon**

Dist. Nashik (MH) 4231006

Affiliation ID: PU/NS/ACS/021/ (1972)

Reaccredited with 'A' Grade by NAAC in 3rd Cycle (3.06)

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INTRODUCTION AND PROFILE OF THE INSTITUTE

Maratha Vidya Prasarak Semaj's Nashik, the parent institution was established in 1914 for the sole cause of education for the deprived classes. The Institution has got the legacy of movement keeping the view of leading the masses from darkness of ignorance to the light of knowledge. The MVP Samaj's in 1972 started Arts, Commerce and Science College in Nandgaon Tehsil of Nashik district.

Since its inception, the college has looked back. It had started with Arts and Commerce faculties but in 1992 started Science faculty. The college was accredited with B grade in its first cycle and in 2011, it received A grade from NAAC, Bangalore. The college is now trying its best to be at the forefront of becoming the pioneering institution of the area in the education process. In the year 2012, the college received the prestigious 'Best College Award' conferred by Savitribai Phule Pune University (SPPU), Pune.

Spread in an area of 6.5 acres, the college imparts both UG and PG level education in various subjects of Arts, Commerce and Science streams. The college is located in drought affected area, which is a remote place the district place too. The campus of college has seven buildings i.e. Main building, Science building, Library building, Girls hostel, ladies toilet, canteen and a well-furnished Gymnasium.

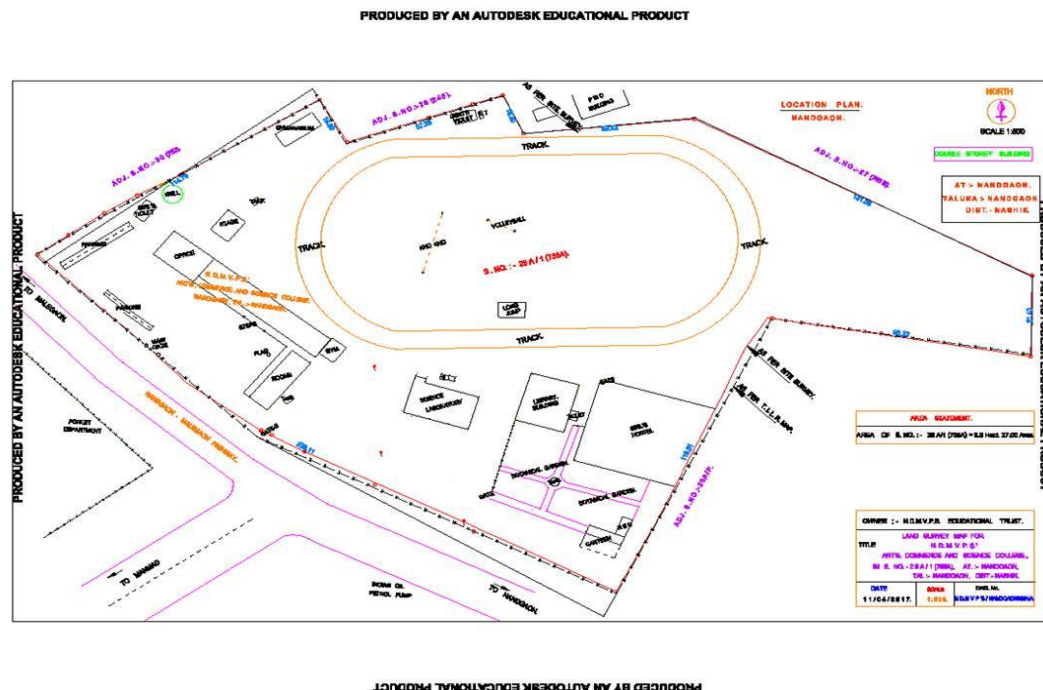


Fig. 1: Campus Map

Table 1: Campus Departments and courses

Sr. No	Faculty of Science
1	Botany
2	Chemistry
3	Mathematics
4	Physics
5	Zoology
	Faculty of Arts
6	English
7	Geography
8	Hindi
9	Marathi
	Faculty of Mental Moral and Social Sciences
10	Economics
11	Political Sciences
	Faculty of Commerce
12	B. Com
13	M.Com

2. ENVIRONMENT CONSERVATION COMMITTEE

Sr. No.	Name of Member	Designation	Title in Committee
1	Dr. S.N. Shinde	Principal	Chairman
2	Dr. A. N. Madane	Assistant Pro. Dep, of Botany	Coordinator
3	Dr. V. B. Sonawane	Assistant Pro. Dep, of Botany	Member
4	Mr. K. M. Nikam	Assistant Pro. Dep, of Chemistry	Member
5	Mr. S.S. Shinde	Assistant Pro. Dep, of Botany	Member
6	Mr. S. P. Dond	Assistant Pro. Dep, of English	Member
7	Mr. S. P. Bhosale	Assistant Pro. Dep, of Commerce	Member
8	Mr. S.D. Chavan	Assistant Pro. Dep, of Physics	Member

Table 2: Environment Conservation Committee

Table 3: External Peer Teem Committee

Sr. No.	Name of Member	Designation	Title in Committee
1.	Dr. V. B. Gaikwad	Principal, KTHM College, Nashik	Chairman
2.	Dr. P. M. Nalawade	Head, Dept of Environmental Science, KTHM College, Nashik	Coordinator
3.	Dr. N. D. Gaikwad	Associate Professor	Member
4.	Dr. B. L. Gadakh	Assistant Professor	Member

3. FUNCTIONS OF ENVIRONMENT CONSERVATION COMMITTEE

- To improve the environment of the college campus.
- To make awareness in students and society about the environment conservation.
- To make efforts for management of solid waste, liquid waste and e-waste of the college campus.
- To implement the regulations to reduce sound pollution.
- To make efforts to reduce water pollution.
- To make efforts for water conservation.
- To plant more trees and ensure their survival.
- To maintain paperless office.
- To maintain soil management at the college campus.
- To maintain plastic free college campus.
- To provide compost fertilizers with the help of vermicomposting project.

4. SCOPE OF WORK

The following Environmental Issues were studied for the above-mentioned campus area.

1. Water audit
2. Landscaping and tree plantation.
3. Energy audit
4. Noise Environment.
5. Solid Waste Management Practices.

Air Environment.

Based on the available data, sampling and information provided by the KTHM officials this report has been prepared and recommendations for betterment of campus environment are provided.

Baseline Data

The most of the baseline data relating population, water supply, has been collected from the management of the college. The data / samples for drinking water, noise, floral diversity and solid waste generation were collected by visiting the campus area by the expert teams.

Table 4: Total Population of the campus.

Sr. No.	Department	Total population of institute (incl. Students, Permanent, Temporary staff & visitors)
1	Institute (staff)	100
2	Institute - students	1107
3	Girls Hostel	14
4	Canteen (floating population)	195
	Total	1402

5. WATER AUDIT

Introduction:

Water is life

Water is very important thing for every living being, we can't imagine our life without water. At every educational institute need a good water source for campus. Our college situated in city Nandgaon; district Nashik Nandgaon region is dry & water level is very low because of that we faced a serious water issue in our campus. To come over that problem our institute work on water security for campus, we do all needful things to save water and stop water wastage. Simple actions can be adopted to reduce the wastage of water and use it wisely.

Definition:

Water Audit is a qualitative and quantitative analysis of water consumption to identify means of Reducing, Reusing and Recycling of water at college Water usage in campus can be defined as water used for all activities which are carried out in campus from different water sources which are available in college, this includes usage in all residential halls, academic buildings, and girl & boys washrooms, Hostel, in all college campus Wastewater is referred as the water which is transported off the campus. The wastewater includes sewerage, residence, hall water used in cooking, showering, clothes washing as well and wastewater from chemical and biological laboratories which ultimately going down in sink or drainage system.

The total amount of water that can be collected from this roof is not enough to fulfil the total water demand.

However, it might still be worthwhile to construct a rainwater harvesting system. With a storage reservoir of 4100 litres (4.1 m³) a rainwater

Harvesting system could provide 26 litres of water per day, which is 0% of the total demand.

Details on the results and calculations can be found below

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Location

Location: 8J8X+39J, Nandgaon, Maharashtra 423106, India

Latitude: 20.31578759840601 degrees

Longitude: 74.64868180453777 degrees

Roof size: 2250 square meters

Roof type: flat

Runoff coefficient: 0.7

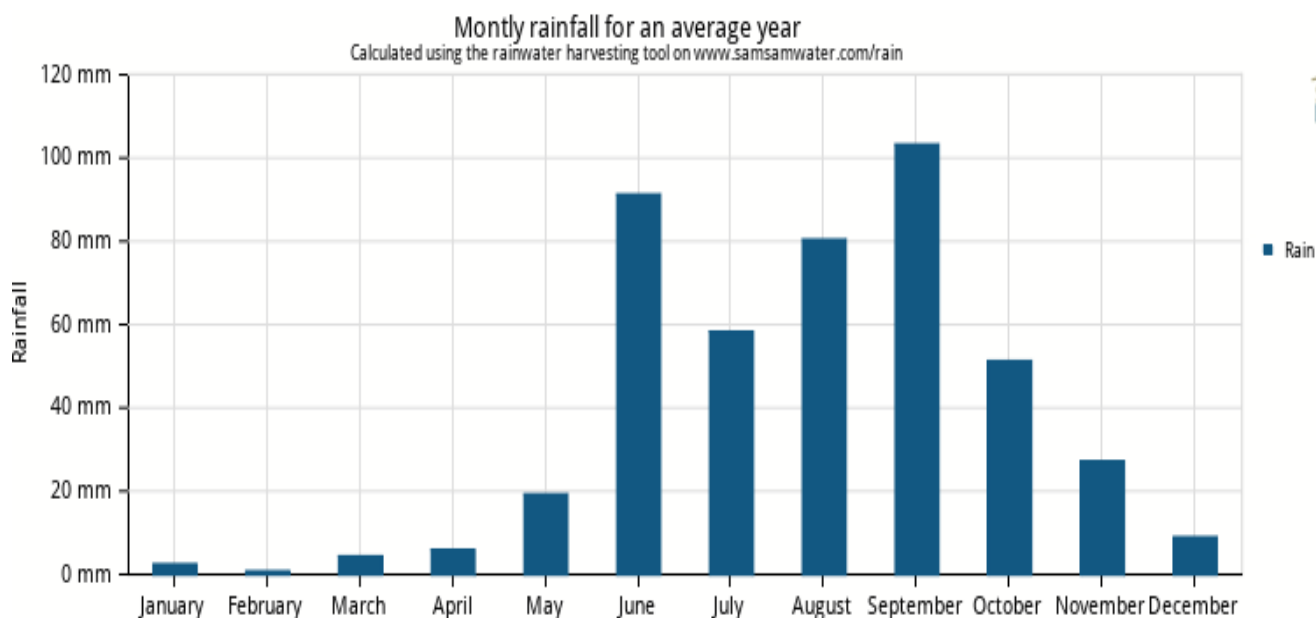
Water demand: 3000 liters per day



<https://goo.gl/maps/Q9y32bxaxWJqEW8R6>

Rainfall

The average rainfall at this location varies between 0.7 mm in the driest month (February) and 103.2 mm in the wettest month (September). The total annual rainfall in an average year is 453 mm



Water availability

A flat roof has a runoff coefficient of 0.7, which means that 70% of the rain can be harvested. Based on this runoff coefficient and a roof area of 30 square metres a volume of 15 litres

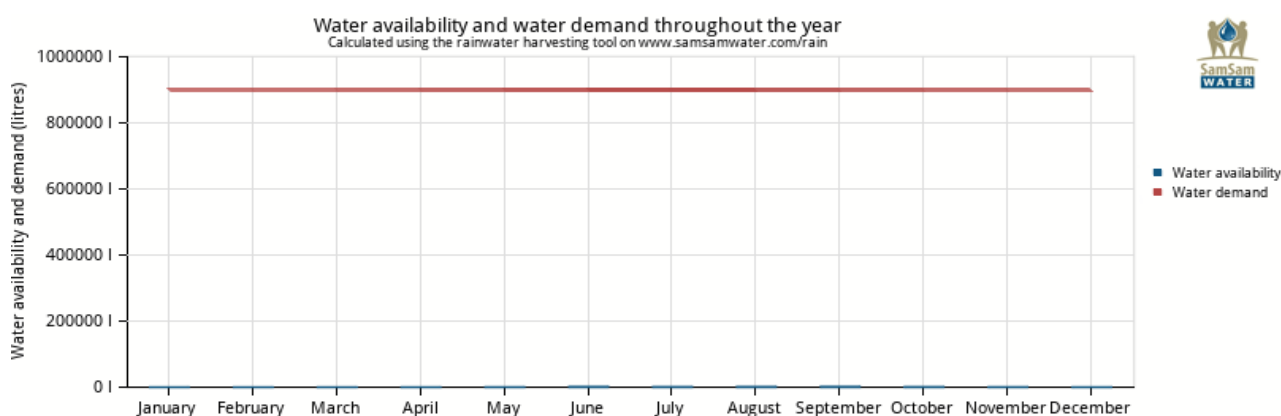
(0.7 mm x 30 m² x 0.7) of water can be collected in the driest month (February) and 2167 litres (103.2 mm x 30 m² x 0.7) in the wettest month (September).

The total yearly amount of water that can be collected from the roof is 9500 litres (10m³) in an average year.

Water demand

The water demand is 30000 litres per day, which equals to about 900000 litres per month. The total water demand is 10950000 litres (10950 m³) per year.

The amount of water that can be collected from the roof (10m³) is less than the water demand (10950 m³). Only a part of the water demand can be fulfilled using a rainwater harvesting system.

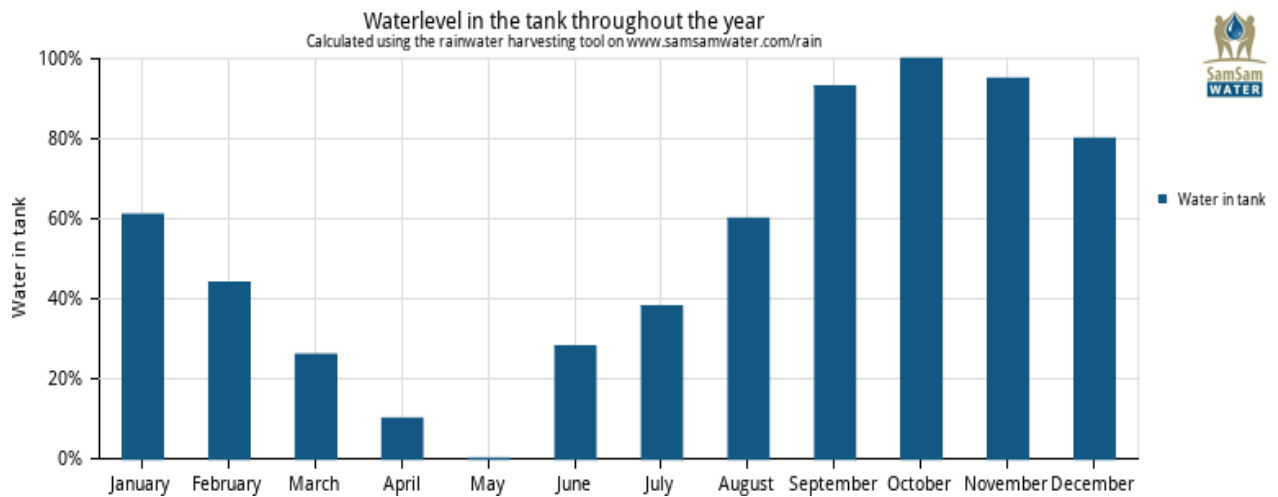


Required storage

The total amount of water that can be collected from this roof, 9500 litres, is not enough to fulfil the total yearly water demand of 10950000 litres.

However, it might still be worthwhile to construct a rainwater harvesting system. With a storage reservoir of 4100 litres (4.1 m³) a rainwater harvesting system could provide 26 litres of water per day, which is 0% of the total demand.

The storage reservoir will be full in and then slowly drain until it is (almost) empty at the end of May.



Dry and wet years

This calculation is based on the average monthly rainfall. The actual rainfall differs from month to month and year to year. The amount of available water and filling of the tank might therefore be different and change from year to year.

When constructing a rainwater harvesting system it is important to take this into account. Below is a description of the situation in a dry year (20% chance) and a wet year (20% chance).

Situation in a dry year: During a dry year, there is less rain to fill the system. The system can provide a smaller amount of water compared to an average year. All rain is stored, so constructing a larger reservoir won't help.

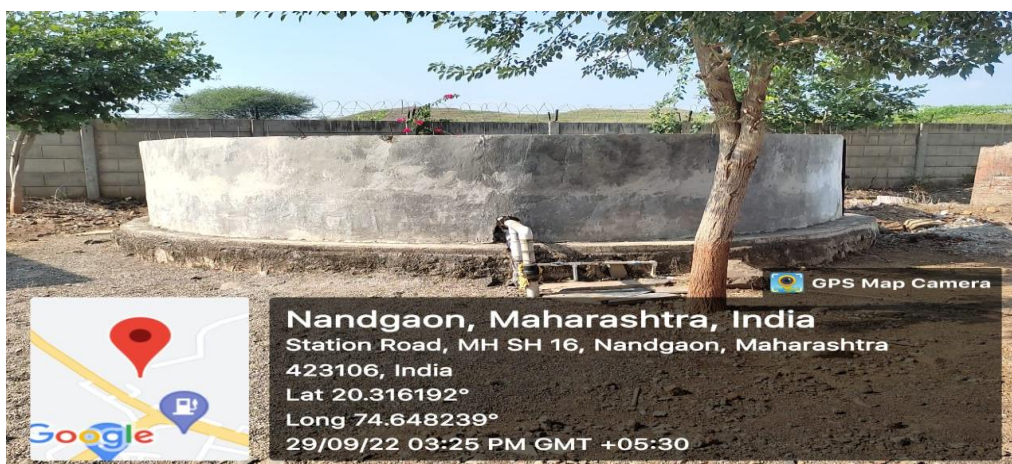
Data source

*The rainfall data used for this calculation is based on the CRU CL 2.0 dataset which is described in New, M., Lister, D., Hulme, M. and Makin, I., 2002: A high-resolution data set of surface climate over global land areas. *Climate Research* 21:1-25.*

College water resources

1. Well

In our college campus near main building college has One Well, this well is the main source of water for college. The work of de-sedimentation and rejuvenation was done after studying the underground water resources of well to activate ground water resources. After the de-sedimentation water level increase that help to fulfill college water need. The well is fulfilling 50% need of water for college.



2. Bore well

To complete water, need of college one well is not enough to come over that college. campus has 2 bore well. That helps to complete college water need both bore wells are in our college campus one is near to college canteen, and another is near to college girl hostel. These two bores well provide water to library building and girl hostel.



3) Nagar Parishad water connection

The college has one water connection from local water supplier, Municipal Corporation of Nandgaon provide water connection to college. That water connection is specially attached to the girl hostel. The water from nagar parishad is store in 50000-liter tank in girl hostel. This store water is used for the girl hostel and the botanical garden of the college.



4) Water tanker

The college is situated in Nandgaon Taluka and this Taluka having very less rain in rainy season because that the ground water level is very less. Water sources are no enough to fulfill water need of campus, to complete water need in summer season we called a local water provider The Santha Maratha Vidya Prasarak samaj's is providing water tanker every year to full fill water need of college.

6. RAIN WATER HARVESTING MANAGEMENT



When we are talking on water saving then rainwater is most important, we see every year we have enough rain but still water level is decreasing every year. We must save that rainwater and help to increase water level. College takes a good stand over that and creates a rainwater harvesting model in college campus. Roof top rainwater harvesting is carried out at Main Administrative building, Additional water collected is diverted to the college constructed tanks and well. The rain harvesting water from the tank is used for science laboratory and garden plants

Water Consumption in the College:

The data collected for Water Audit of MVP Samaj's Arts, Commerce and Science College Nandgaon Dist-Nashik, the water distribution and water consumption pattern is noticed as follows:

The College departments are placed in different groups they are as follow

- a) Main Building Block- A (Administrative Facilities and Class room)
- b) Science laboratory Building Block B (Science Laboratory)
- e) Library Building Block- C (library, Commerce, Humanities and Social science) and Girls Hostel Building Block D (Girl Hostel)

Science Building Block B (Science Laboratory):

Sr. No	Sector	No of Presence	Total Daily Use (Liter)	Total yearly use (L)
1	Toilet	06	200	43200
2	Laboratories	04	1000	216000
3	Urinals	15	300	64800
4	Drinking	01	200	43200
5	Wash Basin	04	100	21600

On the terrace of the science laboratory building block B, the water is store in one 5000 liter tank and the storage capacity of the science laboratory building is 5000 liters. This water is only used for science building for practical and others uses. These 4500 liters of water supply to the building lasts for 5 days



The water consumption at main Building Block A:

Sr.no	Sector	No. of Presence	Total Daily Use (Liter)	Total yearly Use (L)
1	Bathroom	03	150	32400
2	Toilet	05	1300	280800
3	Garden	01	500	108000
4	Urinals	09	1700	367200
5	Drinking	02	1100	237600
6	Wash Basin	04	300	64800

On Terrace of the main building block A the water is store in three 1000 liters tanks and two 1500 liters tanks. The storage capacity of main building is 4500 liters..These 4500 liters of water supply to the building lasts for 2 days.



Girls Hostel Building Block D (Girl Hostel)

Sr.no	Sector	No. of Presence	Total Daily Use (Liter)	Total yearly Use (L)
1	Toilet	06	1200	259200
2	Bathroom	06	2000	432000
3	Drinking	02	1200	259200
4	Wash Basin	04	1000	216000

On the terrace of the girl hostel building the water is store in three 1500 liters tanks and another one 1000 tanks is used for solar heater. The total capacity of the girl hostel terrace is 5500 liters. One 50000 liters tank is present in girls hostel area and in this tanks the water is store from nagar parishad water connection, from two bore well and from well. From this tanks water is supply to girl's hostels, library building and college garden. This

water supply to the building lasts for 2 days. The water from storage tanks is supply to library building, science laboratory and main building when it needs.

Library Building Block C (library, Commerce, Humanities and Social science)

1	Toilet	04	300	64800
2	Bathroom	02	100	21600
3	Urinals	03	250	54000
4	Drinking	01	300	64800
5	Wash Basin	03	150	32400
1	Toilet	04	300	64800



On the terrace of the library building the water is store in one 1000-liter tank and another 1000-liter tank is on the guest house. The total storage capacity of library building is 2000 liters. These 4500 liters water supply to the building lasts for 5 days. College has huge green campus. Efforts have been made on to bring part of land.

Drip Irrigation and Sprinkler Irrigation:

The college has some area under cultivation of medicinal plants as well as other productive plants through NSS and students of Botany departments. Drip irrigation and sprinkler irrigation system have been installed at college gardens which helps to save water and nutrients by allowing water to drip slowly to the roots of plants. The goal is to place water directly into the root zone and minimize evaporation to save water.



Precautionary measures:

College should consider following precautionary measures for improving campus

- 1) Non-teaching staff or peons in the concerned section should take responsibility of monitoring the overflow of water tanks.
- 2) Producing distilled water in the laboratories required large amount of water to distillate. To produce 1 liter of distilled water required more than 33 liters of water. To avoid more wastage college is using rain harvesting water as distilled water.
- 3) Reduce chemical waste formation in Chemistry laboratory; adopt the principles of green chemistry to reduce chemical waste.
- 4) Pipes, overhead tanks and plumbing system should be maintained properly to reduce leakages and wastages of water.

7. WASTE MANAGEMENT

The committee constituted by the Union Ministry of Urban Development (1998 - 2000) had reported that “Solid Waste Management has been one of the neglected areas of urban management activities in India. By and large, in cities and towns; hardly 50% of the solid waste generated is collected, transported and disposed off, giving rise to unhygienic conditions and diseases, especially amongst the urban poor who constitute about 35% of

the urban population.” Even after 15 years of this report, the solid waste management systems in India are still the same.

World Health Organization (**WHO**) has observed that 22 types of diseases can be prevented/ controlled in India by improving Municipal Solid Waste Management (MSWM) system. The Planning Commission Task Force (2014) identifies that “principal reasons for the prevailing unhygienic conditions in our cities is the casual attitude of the citizens as well as the municipal authorities towards managing solid waste, lack of priority to this essential service, inadequate and inappropriate institutional structure, lack of technical knowledge and paucity of financial resources”.

Table 5: MSW generated on the campus per day

Sr. No.	Area Type	Population	Organic Waste (kg)/day	Dry waste (kg)/day
1	Girls Hostel for Covid-patients	25	5	1.2
2	Library	10	2	1.0
3	Canteen	195	35	8
4	All Campus (Students)	50	20	05
5	All Campus (Staff)	54	25	2
	Total Population	1514		
			112	24.02
		Total Waste (kg)/day	136.02	

Observations:

- The campus has huge potential for incorporating biogas plant of composting for organic / biodegradable wastes.
- The campus has small pilot scale vermin composting plant viz. Girl’s hostel (intermittently functional), however a common biogas plant if installed, then cooking gas can be obtained for one of the hostel messes, which in turn will give long term savings on the cooking fuel.

Other Observations:

No segregation of the common garbage in the campus.

Most of the times the horticulture waste and other common garbage from the campus is burnt near the parking lot which pose a threat to the environment and the human health.

The segregated waste from the canteen is directly dumped into the open space of the campus

Chemical / other hazardous waste (liquid & solid) needs to be disposed as per government norms.

Recyclables viz. paper, metal scrap etc. is disposed off / sold out to scrap dealers a tender procedure, however no information is available on the recyclables.

Nearly everything humans do leave behind waste. Arts and Commerce College, Nandgaon also generates a variety of wastes such as electronic wastes, degradable and non-degradable waste. The college does a good job of ensuring that hazardous waste materials are disposed of properly. So, the college has given its top priority to dispose of the waste material.

First the solid waste generated in college campus is collected in separate bins 1) Degradable solid waste (Wet Waste) and 2) Non degradable solid waste (Dry Waste). The garbage management always tries to make the college campus Eco- friendly.

Manure Preparation:

Manure is prepared from plant litter of the college campus. This manure is used for plants of college garden. Manure is a key ingredient in organic farming. At the simplest level, the process of composting simply requires making a heap of wet organic matter and waiting for the materials to break down into humus after a period of three months. Manure is rich in nutrients. The manure itself is beneficial for the land in many ways, including as a soil conditioner, a fertilizer, addition of vital humus or humic acids, and as a natural pesticide for soil.

In ecosystem, manure is useful for erosion control, land and stream reclamation, wetland construction, and as landfill cover. The decomposition process is done by shredding the plant matter, adding water, and ensuring proper aeration by regularly turning the mixture. Worms and fungi further break up the material. Aerobic bacteria manage the chemical process by converting the inputs into heat, carbon dioxide and ammonium. The ammonium is further converted by bacteria into plant-nourishing nitrites and nitrates through the process of nitrification



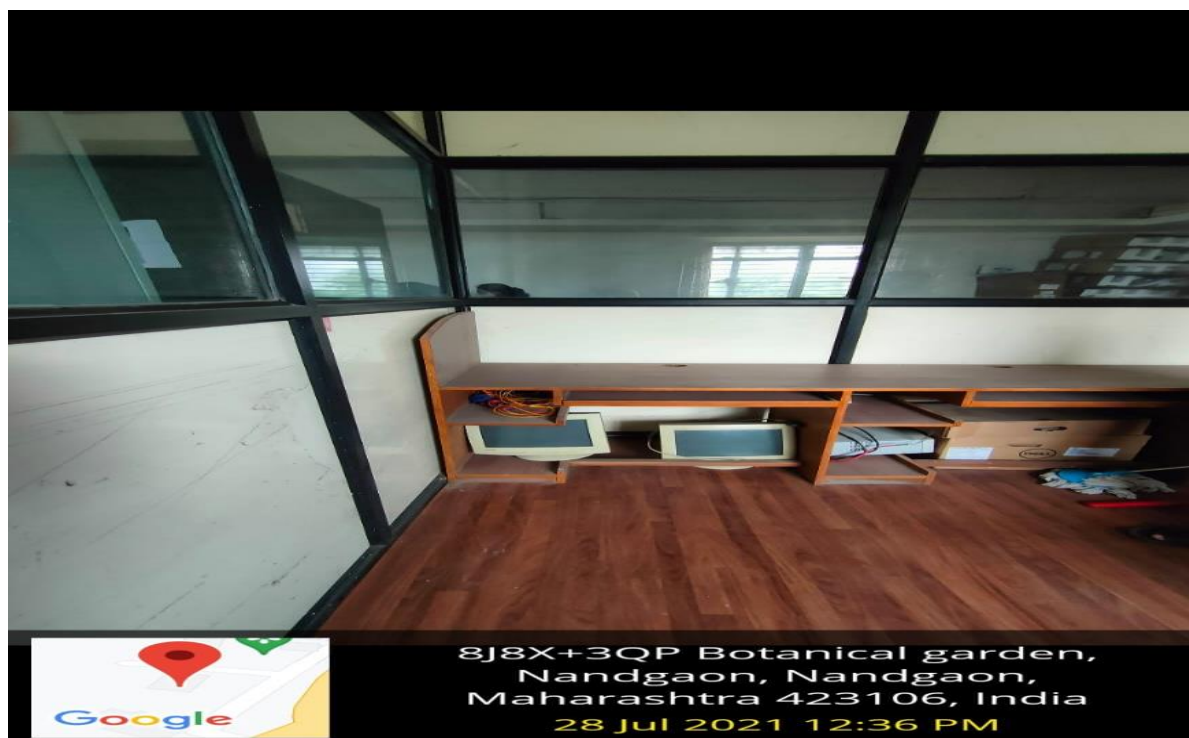
Fig: Vermi Composting Photos

Vermi Composting Unit: Earthworms are considered as friends. Newly develop earthworm species like and *Eisenia foetida* are voracious feeders. They consume large quantity of organic waste material. The college produces Vermi compost from the mulches of leaves of trees and cow dung which are scattered in the campus. The produced vermin compost is being used as fertilizers for trees. This Vermi compost fertilizers project has been proved very useful for the college.

The volume of a Verm pit is found by multiplying the length \times the width \times the height.

II. E-Waste:

- E-Waste materials are kept in a separate storeroom with a dead stock register.
- Drives, Monitors, Keyboards, Cartridges, etc. is disposed through outside agencies as a scrap.
- UPS batteries are recharged / repaired / exchanged by the suppliers.
- The cartridge of laser printers is refilled outside the college campus.



8. SOUND POLLUTION MANAGEMENT

Noise pollution is one of the major environmental issues in India today and most of us are unaware of the hazards it can cause. In India, we all are subjected to some form of loud noises for a considerable amount of time on daily basis as well across the year based on the festive seasons.

Being located on the highway, the faces regular noise problem in the forms of Unwarranted sounds such as honking, other vehicular noise; the loudspeakers on daily basis are inevitable. In our country it's a major perception that happiness can only be expressed by creating loud noises. Table No. 6 shows implications of Noise on Human Body. Exposure to high levels of noise may cause permanent hearing loss. The repeated exposures to loud noise can lead to permanent tinnitus and/or hearing loss. Furthermore, it may create physical and psychological stress, reduce productivity, and interfere with communication

and concentration. The effects of noise induced hearing loss can be profound & can be limiting your ability to hear high frequency sounds, understand speech, and seriously impairing your ability to communicate

Table 6: Considerable Implications of Noise on the Human Body. The observations show that all the locations monitored show high level of noise pollution.

Sr. No.	Noise Levels in HB	Health Hazards
1	80	Annoying
2	90	Hearing Damage
3	95	Very Annoying
4	110	Stimulation of Skin
5	120	Pain Threshold
6	130 – 135	Dizziness, Vomiting
7	140	Pain in Ear
8	150	Significant change in Heart Pulse

SOUND (NOISE) POLLUTION MANAGMENT:

To avoid sound pollution in the college campus, or to avoid causing noise, the college has tried various means to prevent sound pollution.

a. Silent Zone:

The campus has been declared as Silent Zone and the students have been instructed with the help of boards of silence zone.



b. Use of Mobile phone in Silent Mode:

An instruction has been given to students to operate mobile phones in silent mode, especially at the library and auditorium hall.



9. ENVIRONMENTAL CONSRVATION

Landscaping and plantation of trees:

Various manmade activities have wide range of impacts on the surrounding ecosphere, both negative as well as positive. Over the years, the College has undertaken various activities like plantation and beautification of campus through various drives. The campus has good plantation along with a well-developed Botanical garden, and landscaping. It's a positive step to reduce its environmental impact. This section provides a detailed list of plant species observed within the campus.

The campus attempts to maintain ecofriendly atmosphere on the campus; the number and variety of plant species helps to maintain eco-friendly ambience. Further, to create eco-friendly awareness among the student's college arranges special programmes through which the students get clear idea and importance of trees in life. There are more than 60 perennial plant species have been observed.

Collage campus is very particular about maintaining the rich flora of the campus by planting a variety of saplings in the college premises. NSS team initiated "Harithaharam" plantation around the campus with the coordination of faculty members, students, and Management. Green Peace Eco Club conducted various activities to grow plants in the campus as well as nearby villages. All the campus of the college are equipped with a drip method for watering the plants to reduce the usage of potable water.

Though, the college campus represents good plant diversity, there is large scope to plant more trees, particularly along the fence line of main road where high to very high traffic was noticed.

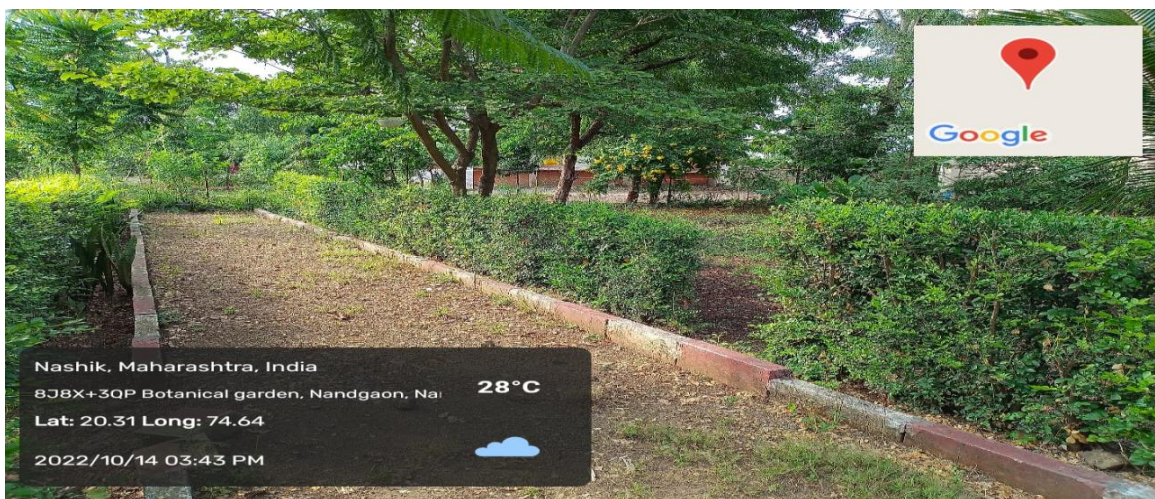


Fig. 3: Botanical Garden of the college**Table 1: List of plant species observed in the campus during the field visit**

Sr. No.	Botanical Name	Marathi Name	Family	Habit	No. of Plant Sp.
1	<i>Acacia auriculiformis</i>	ऑस्ट्रेलियन बाभूळ	Mimosaceae	Tree	2
2	<i>Acacia nilotica</i>	बाभूळ	Mimosaceae	Tree	6
3	<i>Adhatoda vasaka</i>	अडुलसा	Acanthaceae	Shrub	3
4	<i>Adiantum pedatum</i>	अँडिअंटम	Adiantaceae	Herb	1
5	<i>Aegle marmelos</i>	बेल	Rutaceae	Tree	1
6	<i>Aglaonema crispum</i>	अँग्लोनेमा	Araceae	Shrub	2
7	<i>Alamanda nerifolia</i>	आलमंडा	Apocynaceae	Climber	1
8	<i>Albizia lebback</i>	शिरीस	Mimosaceae	Tree	20
9	<i>Aloe barbadensis</i>	कोरफड	Liliaceae	Herb	20
10	<i>Alstonia scholaris</i>	सातवीन	Bignoniaceae	Tree	45
11	<i>Anacardium occidentale</i>	काजू	Anacardiaceae	Tree	1
12	<i>Annona squamosa</i>	सीताफळ	Annonaceae	Shrub	16
13	<i>Anthocephalus cadamba</i>	कदंब	Rubiaceae	Tree	1
14	<i>Anthurium andreanum</i>	नागफानी	Araceae	Shrub	2
15	<i>Araucaria cookii</i>	ख्रिसमस ट्री	Auracariaceae	Tree	1
16	<i>Areca catechu</i>	सुपारी	Arecaceae	Tree	1
17	<i>Argyria nevosa</i>	समुद्रशोक	Apocynaceae	Climber	1

18	<i>Artabotrys hexapetalus</i>	हिरवा चाफा	Annonaceae	Shrub	1
19	<i>Asparagus racemosus</i>	शतावरी	Liliaceae	Climber	1
20	<i>Azadirachta indica</i>	कडुनीम	Meliaceae	Tree	121
21	<i>Bambusa Vulgaris</i>	बांबू	Poaceae	Tree	10
22	<i>Barleria prionitis</i>	काटेकोरंटी	Acanthaceae	Shrub	2
23	<i>Bauhinia racemosa</i>	आपटा	Caesalpinia e	Tree	6
24	<i>Bauhinia variegata</i>	रक्तचंदन	Caesalpinia e	Tree	4
25	<i>Bombax ceiba</i>	काटेसावर	Bombacaceae	Tree	4
26	<i>Bougainvillea spectabilis</i>	बोगनवेल	Nyctaginaceae	Climber	59
27	<i>Butea monosperma</i>	पळस	Fabaceae	Tree	2
28	<i>Caesalpinia pulcherrima</i>	शंखासुर	Caesalpinia e	Shrub	1
29	<i>Callindra emerginata</i>	पावडर पफ	Mimosaceae	Shrub	1
30	<i>Callindra hybrida</i>	कॉलिन्र	Mimosaceae	Shrub	1
31	<i>Callistemon acuminatus</i>	बाटली ब्रश	Myrtaceae	Tree	4
32	<i>Calotropis procera</i>	रुई	Asclepiadace e	Shrub	6
33	<i>Canna indica</i>	कर्दळ	Cannaceae	Shrub	1
34	<i>Carrisa carandus</i>	करवंद	Solanaceae	Shrub	1
35	<i>Cassia fistula</i>	बहावा	Caesalpinia ae	Tree	1
36	<i>Cassia siamia</i>	तरवट	Caesalpinia e	Shrub	1

37	<i>Centella asiatica</i>	ब्राह्मी	Apiaceae	Herb	1
38	<i>Cestrum nocturnum</i>	रातराणी	Solanaceae	Climber	1
39	<i>Cinnamomum tamala</i>	तेजपान	Lauraceae	Herb	1
40	<i>Cinnamomum zeylanicum</i>	दालचिनी	Lauraceae	Shrub	1
41	<i>Clematis triloba</i>	रानजाई	Ranunculaceae	Climber	1
42	<i>Clitoria ternatea</i>	गोकर्ण	Pappilionaceae	Climber	4
43	<i>Cocos nucifera</i>	नारळ	Arecaceae	Tree	1
44	<i>Codiaeum variegatum</i>	क्रोटन	Euphorbiaceae	Shrub	2
45	<i>Coleus blumei</i>	कोलियस	Lamiaceae	Herb	1
46	<i>Couroupita guianensis</i>	कैलासपती	Lecythidaceae	Tree	1
47	<i>Cuphea hyssopifolia</i>	कुफिया	Lythraceae	Herb	1
48	<i>Cycus revoluta</i>	सायकस	Cycadaceae	Shrub	2
49	<i>Cyprus sp.</i>	नागरमोथा	Cyperaceae	Shrub	1
50	<i>Delbergia sisso</i>	शिसम	Papillionaceae	Tree	51
51	<i>Delonix regia</i>	गुलमोहर	Caesalpiaceae	Tree	14
52	<i>Dieffenbachia amoena</i>	डिफेनबाचिया	Areceae	Shrub	1
53	<i>Dodonaea viscosa</i>	बाढ	Sapindaceae	Shrub	10
54	<i>Dypsis lutescens</i>	अरेका पाम	Arecaceae	Shrub	1
55	<i>Elaeocarpus ganitrus</i>	रुद्राक्ष	Elaeocarpaceae	Tree	1
56	<i>Eucalyptus globulus</i>	नीलगिरी	Myrtaceae	Tree	3

57	<i>Eugenia caryophyllus</i>	लवंग	Myrtaceae	Tree	1
58	<i>Euphorbia pulcherrima</i>	पॉइसेटिया	Euphorbiaceae	Shrub	1
59	<i>Ficus benghalensis</i>	वड	Moraceae	Tree	26
60	<i>Ficus religiosa</i>	पिंपळ	Moraceae	Tree	24
61	<i>Ficus recimosa</i>	उंबर	Moraceae	Tree	1
62	<i>Ficus benjamina</i>	नंदरुख	Moraceae	Tree	3
63	<i>Ficus rumphii</i>	पायरी	Moraceae	Tree	1
64	<i>Grevillia robusta</i>	सिल्व्हर ओक	Proteaceae	Tree	18
65	<i>Hardwickia binata</i>	अंजन	Caesalpiniaceae	Tree	48
66	<i>Heliconia rostrata</i>	हेलिकोनिया	Heliconiaceae	Shrub	1
67	<i>Hibiscus rosa-sinensis</i>	जासवंद	Malvaceae	Shrub	7
68	<i>Hyophorbe lagenicaulis</i>	बाटली पाम	Arecaceae	Tree	1
69	<i>Ixora coccinia</i>	एक्झॉरा	Rubiaceae	Shrub	1
70	<i>Jacranda mimosifolia</i>	निली गुलमोहर	Bignoniaceae	Tree	1
71	<i>Jasminum auriculatum</i>	जाई	Oleaceae	Climber	1
72	<i>Jasminum sambac</i>	मोगरा	Oleaceae	Herb	3
73	<i>Juniperus chinensis</i>	जुनिपर	Cupressaceae	Shrub	2
74	<i>Lantana camera</i>	घाणेरी	Verbenaceae	Shrub	12
75	<i>Leucaena leucocephala</i>	सुबाभूळ	Mimosaceae	Tree	28
76	<i>Limonia acidissima</i>	कवठ	Rutaceae	Tree	1
77	<i>Madhuca indica</i>	मोहा	Sapotaceae	Tree	1

78	<i>Magnolia grandiflora</i>	मॅग्नोलिया	Magnoliaceae	Tree	1
79	<i>Mesua ferrea</i>	नागकेशर	Calophyllaceae	Shrub	1
80	<i>Millingtonia hortensis</i>	कावळ निंब	Bignoniaceae	Tree	1
81	<i>Mimusops elengi</i>	बकुल	Sapotaceae	Tree	1
82	<i>Mimosa pudica</i>	लाजाळू	Fabaceae	Perennial creeper	1
83	<i>Moringa oleifera</i>	शवगा	Moringaceae,	Tree	4
84	<i>Murraya koinigii</i>	कढीपत्ता	Rutaceae	Shrub	2
85	<i>Murraya paniculata</i>	मधुकामिनी	Rutaceae	Shrub	10
86	<i>Mussaenda erythrophylla</i>	मुसेंडा	Rubiaceae	Shrub	1
87	<i>Nephrolepis exaltata</i>	फर्न	Nephrolepidaceae	Herb	4
88	<i>Nerium indicum</i>	कन्हेर	Apocynaceae	Shrub	2
89	<i>Nyactanthis arbor-tristis</i>	पारिजातक	Oleaceae	Tree	1
90	<i>Ocimum sanctum</i>	तुळशी	Lamiaceae	Herb	17
91	<i>Passiflora edulis</i>	कृष्णकमल	Passifloraceae	Climber	2
92	<i>Passiflora quadrangularis</i>	कृष्णकमल	Passifloraceae	Climber	1
93	<i>Peltoforum pterocarpum</i>	पिवळी गुलमोहर	Fabaceae	Tree	3
94	<i>Phyllanthus emblica</i>	आवळा	Euphorbiaceae	Tree	3
95	<i>Pinus longifolia</i>	पायनस	Pinaceae	Tree	1
96	<i>Plumeria rubra</i>	चाफा	Apocynaceae	Shrub	5
97	<i>Pongamia pinnata</i>	करंज	Fabaceae	Tree	40

98	<i>Polyalthia longifolia</i>	अशोक	Annonaceae	Tree	21
99	<i>Psidium guajava</i>	पेरू	Myrtaceae	Tree	1
100	<i>Prunus amygdalis</i>	बदाम	Rosaceae	Tree	13
101	<i>Punica granatum</i>	डालिंब	Punicaceae	Shrub	1
102	<i>Opuntia ficus-indica,</i>	फड्या निवडुंग	Cactaceae	Shrub	4
103	<i>Quamoclit coccinia</i>	विष्णुक्रांत	Convolvulaceae	Climber	4
104	<i>Quisqualis indica</i>	रंगून वेल	Combretaceae	Climber	1
105	<i>Ravenala madagascariensis</i>	प्रवासी पाम	Strelitziaceae	Shrub	1
106	<i>Rhoeo spathacea</i>	रिओ	Commelinaceae	Herb	7
107	<i>Rosa demascena</i>	गुलाब	Rosaceae	Herb	10
108	<i>Russelia juncea</i>	गणेशवेल	Plantaginaceae	Climber	5
109	<i>Saraca indica</i>	सीता अशोक	Caesalpiniaceae	Tree	1
110	<i>Spathodea campanulata</i>	स्पॅथोडिया	Bignonaceae	Tree	1
111	<i>Syzygium samarangense</i>	पांढरा जामुन	Myrtaceae	Tree	1
112	<i>Swietenia macrophylla</i>	महोगानी	Meliaceae	Tree	1
113	<i>Tabernaemontana coronaria</i>	चांदणी	Apocynaceae	Shrub	1
114	<i>Tabernaemontana Valeriana</i>	डबल टगर	Apocynaceae	Shrub	1
115	<i>Tagetes erecta</i>	झेंडू	Asteraceae	Herb	1
116	<i>Tamarindus indica</i>	चिंच	Caesalpiniaceae	Tree	5

117	<i>Tecoma stans</i>	टेकोमा	Bignoniaceae	Shrub	1
118	<i>Tecomaria capensis</i>	टेकोमेरिया	Bignoniaceae	Shrub	1
119	<i>Terminalia arjuna</i>	अर्जुन	Combretaceae	Tree	1
120	<i>Terminalia bellerica</i>	बेहडा	Combretaceae	Tree	1
121	<i>Terminalia chebula</i>	हिरडा	Combretaceae	Tree	1
122	<i>Thevetia peruviana</i>	पिवळी कन्हेर	Apocynaceae	Shrub	1
123	<i>Thuja occidentalis</i>	मोरपंखी	Cupressaceae	Shrub	4
124	<i>Tectona grandis</i>	सागवान	Verbenaceae	Tree	5
125	<i>Vinca rosea</i>	सदाफुली	Apocynaceae	Herb	5
126	<i>Vitex negundo</i>	निरगुडी	Verbenaceae	Shrub	10
127	<i>Withania somnifera</i>	अश्वगंधा	Solanaceae	Shrub	6
128	<i>Woodfordia fruticosa</i>	धायटी	Lythraceae	Shrub	1
129	<i>Ziziphus mauritiana</i>	बोर	Rhamnaceae	Tree	2

Table 8: Insect birds and mammals:

Sr. No.	Type	Local Name	Scientific Name
1	Amphibians	Indian Toad	<i>Bufo melanostictus</i>
2	Amphibians	Indian Bull Frog	<i>Hoplobatrachus tigerinus</i>
3	Annelids	Earthworm	<i>Lumbricus terrestris</i>
4	Mollusk	Snail	<i>Cornu aspersum</i>

Table 9: Amphibians Birds

Sr.no	Type	Local Name	Scientific Name
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1	Bird	Bird dove	<i>Columba livia</i>
2	Bird	Coucal	<i>Centropus sinensis</i>
3	Bird	Indian Black koel	<i>Eudynamys orientalis</i>
4	Bird	Coppersmith Barbet	<i>Megalaimahaemacephala</i>
5	Bird	Myna	<i>Acridotheres tristis</i>
6	Bird	Cattle Egret	<i>Bubulcus ibis</i>
7	Bird	Pond Heron	<i>Ardeola grayii</i>
8	Bird	White breasted water hen	<i>Amaurornis phoenicurus</i>
9	Bird	Black winged Kite	<i>Elanus caeruleus</i>
10	Bird	Lesser Golden backer	<i>Chrysocolaptes</i>
11	Bird	Indian Roller	<i>Coracias benghalensis</i>
12	Bird	Little Cormorant	<i>Microcarbo niger</i>
13	Bird	Grey Heron	<i>Ardea cinerea</i>
14	Bird	Crow	<i>Corvus splendens</i>
15	Bird	White Heron	<i>Amaurornis phoenicurus L.</i>
16	Bird	Sparrow	<i>Passeridae</i>
17	Bird	Indian Peacock	<i>Pavo cristatus</i>

Table 10: Butterflies

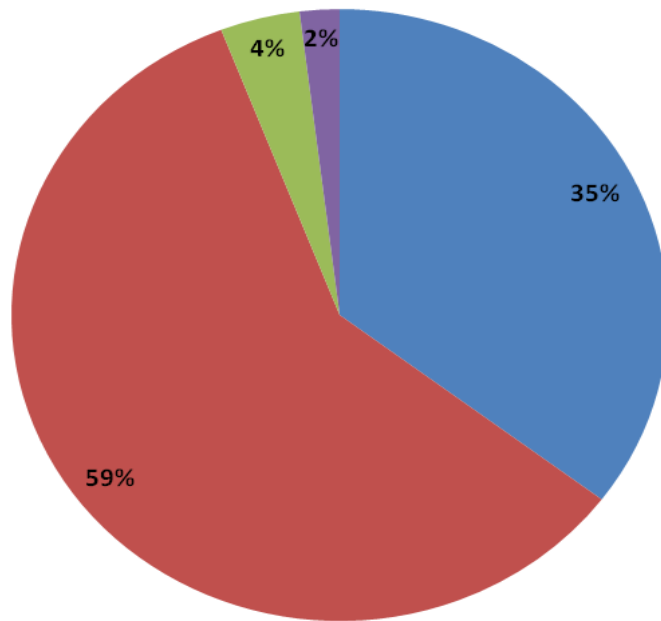
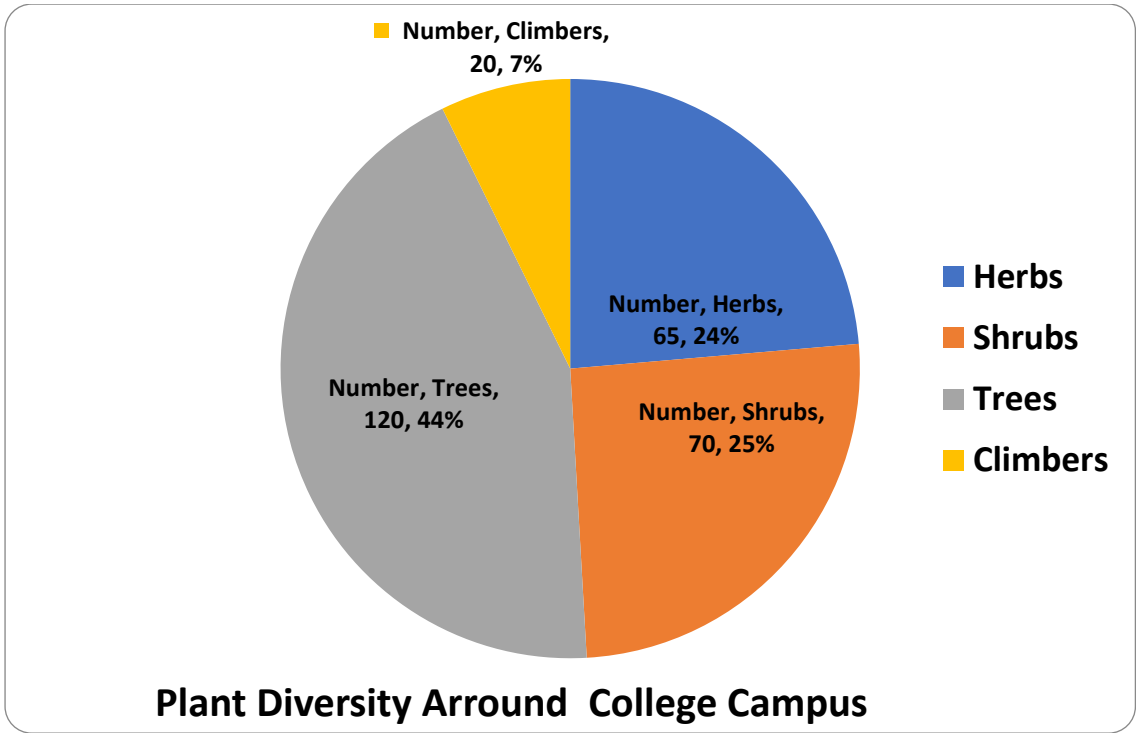
Sr.no	Type	Local Name	Scientific Name
1	Butterfly	Crimson Rose	<i>Pachliopta hector Linnaeus</i>
2	Butterfly	Common Mormon	<i>Papilio polytes Linnaeus</i>
3	Butterfly	Common Emigrant	<i>Catopsilia pomona Fabricius</i>
4	Butterfly	Common Grass Yellow	<i>Eurema hecabe Linnaeus</i>
5	Butterfly	Common Wanderer	<i>Pareronia valeria</i>
6	Butterfly	Common Fivering	<i>Ypthima baldus</i>

Table 11. Mammals

Sr.no	Type	Local Name	Scientific Name
1	Mammal	Ruddy Mongoose	<i>Herpestes smithii</i>
2	Mammal	Indian Hare	<i>Lepus nigricollis</i>
3	Mammal	Indian Gerbil	<i>Tatera indica</i>
4	Mammal	Indian Bush Rat	<i>Golunda ellioti</i>
5	Mammal	Monkey	Cercopithecidae

Table 12. Reptiles

Sr.no	Type	Local Name	Scientific Name
1	Reptile	Common house gecko	<i>Hemidactylus frenatus</i>
2	Reptiles	Common Garden Lizard	<i>Calotes versicolor</i>
3	Reptiles	Fan-throated Lizard	<i>Sitana ponticeriana</i>
4	Reptiles	Common smooth-scaled s water Snake	<i>Enhydriis enhydri</i>
5	Reptiles	Buff striped keel back	<i>Amphiesma stolata</i>



Animal Diversity Around Collage Campus

10. AIR POLLUTION MANAGEMENT

Air pollution has also become a critical issue in India. Most of the urban conglomerations in India are highly polluted with recent case of Delhi air pollution. In 2014, the World Health Organisation (WHO) had assessed 1,622 cities worldwide for PM_{2.5} and found that 13 of the 20 cities in India that WHO assessed are with the most polluted air.

The air pollution is mainly caused by vehicle emissions, fuel, industrial activities, and coal fired power plants. The WHO further suggests that most Indians breathe unsafe air. Air pollution causes asthma, which is now soaring, even amongst the children. PM_{2.5} contributes to cancer, and it kills by triggering heart attacks and strokes.

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 windstorm, pollen grains, natural dust, vehicular emissions, generators, fires and laboratory fumes etc. The air pollutants monitored on regular basis are Sulphur dioxide (SO₂), Oxides of Nitrogen as NO₂, Suspended Particulate Matter (SPM) and Repairable Suspended Particulate Matter (RSPM) etc.

The chief sources of air pollution in the study area are mainly due to continuous vehicular activities and domestic firewood burning, fuel burning etc and natural dust. The major pollutants released in the atmosphere will be PM₁₀, PM_{2.5}, SO₂, NO_x and CO etc. All the air quality parameters are within standard limits of CPCB, New Delhi, which suggests ambient air quality at ACS College, Nandgaon campus. College has green campus of 6.5 acres efforts have been made on to planting more trees on the peripheral boundary of the campus through NSS, senior students, teaching and nonteaching staff in college. Hence, the greenery around the institute helps to neutralize whatever carbon and its byproducts generated. The campus has total 138 plant species which includes trees, shrubs, herbs, and climbers.

Observations:

- The campus is located on Aurangabad- Malegaon Highway.
- The campus population (student, staff and others) mostly prefers public transport facilities, which minimizes the air pollution.
- Table no. 15 shows air pollution levels within and around the campus. This sampling was carried out on different dates through two weeks' time.
- The observations show all the parameters in the campus are within the NAAQ Standards.

11. RECOMMENDATIONS

Water Environment

The college campus with more than 5 buildings has a high potential for the Rainwater Harvesting due to large terrace areas as well as the open surfaces (paved & unpaved areas).

Based on the geotechnical survey of the campus area, the college should emphasize on recharging the ground water table with the rainwater. The college has already placed a tank for the storage of rainwater. This would satisfy part requirement of the campus in the monsoon season (i.e., about 80 – 90 days in a year) and thus reducing freshwater intake during rainy days.

It is recommended to install water efficient faucets and flushing systems across the campus which would reduce the freshwater requirement of the campus.

Even though all the drain lines of the campus are connected to the common sewer line, it is suggested that if the management is looking forward to overall environmental sustainability, then an Effluent Treatment Plant (ETP) may be installed. This would treat & recycle the wastewater within the campus and this treated wastewater can further be used either for flushing or landscaping, thus further reducing freshwater requirement of the campus by 50 – 60 % of the total. Such modular treatment plant can be used for environmental science student's practical course as well.

To use the treated wastewater for flushing a separate plumbing system is required.

It is recommended that liquid chemical waste from the laboratories should not be disposed of without any treatment.

Noise Environment

1. In order make campus friendly for educational purposes, the noise levels need to be reduced as directed by Noise Pollution (Regulation and Control) amendment rules, 2000 and certain disciplinary measures need to be taken.
2. It is observed that due to the proximity of the campus to the main road, the noise pollution is high. It ranges from minimum of 50.0 dB (A) to maximum 73.6 dB (A) which is 23.6 dB (A) over the stipulated standard. This would mean students are getting exposed to high noise pollution levels within the campus due to either internal activities or external activities. This would create hurdle in learning and their overall health.

3. It is recommended that the campus to have noise barriers along the fence line either in terms of natural barriers such as trees or artificial barriers such as acoustic fence. A combination of both can also be used at appropriate locations.

Fig. 4: Types of noise barriers



Acoustic Fence

Biological noise barrier structure - trees

3. It is recommended that parking lots within the campus to be made strictly as no honking zones and vehicles with unwarranted vehicle silencers (mufflers) not be allowed.

Plant diversity

To maintain the college campus green and eco-friendly, more trees need to be planted. A thick green belt (of *Ficus benjamina*) development along the fence is strongly recommended. The plant diversity shall be maintained by avoiding the plantation of exotic plant species. A tree monitoring committee is to be established; if not present currently. The college authorities should ensure frequent meetings with the tree monitoring committee.

Carbon neutrality can be maintained on the campus by developing more greenery. The plant species that are found suitable are suggested for plantation and greenbelt development. In addition to above some flowering plants, shrubs, herbs, and climber plants species will also be planted for beautification in the campus.

Criteria for selection of tree species:

The choice of species is based on the adaptability to the site, early returns, multiple uses, complimentary role to the system and its possible role during the lean/critical periods. The key factor contributing to the success of tree planting is selection of suitable tree species. Some of the considerations for selection of tree species are:

- Adaptation to local soil and agro-climate condition.
- Drought resistant species that can survive long dry periods.

- Multipurpose use species.
- Species that can serve for soil and water conservation.
- Species that help in building up soil fertility.
- Species that have good coppicing ability.

For the purpose of landscaping, following eight categories are recommended.

1. Avenues – Trees to shade roads or create avenues within property.
2. Parking - Shade giving trees for open parking lots.
3. Ornamentals – the purpose indicates:
 - a. Thicket – To be grown in groups to form a thick vegetated corner, centre or pocket.
 - b. Isolation - To be planted singly either in corners or as central attraction.
 - c. Scattered - To be planted at random to be able to appreciate its ornamental nature.
 - d. Groups – To be grown in groups of 3 to 4.
4. Hedges/Edges/Screens. –
 - a. Hedges for property hedges, for demarcating areas etc.
 - b. Edges for edging of small flower patches, for setting boundaries, for layering etc.
 - c. Screens - Provide privacy, as screens from pollution from adjoining road or to provide shadow from south sun.
5. Ground covers – These include native lawn varieties and plant species that spread laterally and can be used to cover soil below trees etc.
6. Temple plants – Trees normally associated with religious areas.
7. Climbers – Plants that can be used for forming trellis, etc.
8. Aquatic plants – For ponds or water bodies. Some of these plants need to be maintained by regular pruning to prevent excessive growth.

The plant species suggested for green belt development in addition to the present one layer of vegetation on the boundary would be helpful for mitigating gases and particulate matter.



It can also help in reducing noise from the heavy traffic road close to the campus will serve for long time.

Fig. 5: The native plant species suggested for plantation in the college campus.

Table 11: List of suggested plants (an appropriate few plants can be used)

Botanical Name	Local Name	Family	Habit	Flower Color
First Row-trees (outermost)				
<i>Drypetes roxburghii</i>	Putranjiva	Euphorbiaceae	Tree	Greenish Yellow
<i>Holoptelea integrifolia</i>	Wavli	Ulmaceae	Tree	Greenish
<i>Terminalia cuneata</i>	Arjun	Combrataceae	Tree	Yellow
<i>Terminalia paniculata</i>	Kinjal	Combrataceae	Tree	Greenish-white
<i>Terminalia tomentosa</i>	Ain	Combrataceae	Tree	White
<i>Bambusa arundinacea</i>	Bamboo	Poaceae	Bamboo	White, greenish
<i>Dendrocalamus strictus</i>	Velu	Poaceae	Bamboo	Blackish
<i>Cordia dichotoma</i>	Bhokar	Boraginaceae	Tree	White

Botanical Name	Local Name	Family	Habit	Flower Color
<i>Dalbergia latifolia</i>	Shisam	Fabaceae	Tree	White
<i>Diospyros peregrine</i>	Tembhurni	Ebenaceae	Tree	White creamy
<i>Garcinia indica</i>	Kokam	Clusiaceae	Tree	Yellowish
<i>Haldina cordifolia</i>	Hedu	Rubiaceae	Tree	Red yellowish
Shrub Layer				
<i>Gardenia gummifera</i>	Dikemali	Rubiaceae	Shrub	White
<i>Ixora coccinea</i>	Bakara	Rubiaceae	Shrub	Orange / Red
<i>Ixora nigricans</i>	Kat-kuda	Rubiaceae	Shrub	White
<i>Justicia adhatoda</i>	Adulsa	Acanthaceae	Shrub	White
<i>Helicteres isora</i>	Murudseng	Sterculiaceae	Shrub	Red bright
<i>Murraya koenigii</i>	Kadhipatta	Rutaceae	Shrub	Greenish White
<i>Murraya paniculata</i>	Kunti	Rutaceae	Shrub	White
<i>Hiptage benghalensis</i>	Madhvilata	Malpighiaceae	Climber	White
<i>Ehretia laevis</i>	Ajan	Ehratiaceae	Tree	White
<i>Vitex negundo</i>	Nirgudi	Verbenaceae	Shrub	Bluish - Purple
<i>Woodfordia fruticosa</i>	Dhyati	Lythraceae	Shrub	Red
<i>Gardenia resinifera</i>	Dikemali	Rubiaceae	Shrub	White
<i>Cassia auriculata</i>	Tarwad	Caesalpiniaceae	Shrub	Yellow
Second Row (from outside)				
<i>Artocarpus heterophyllus</i>	Phanas	Moraceae	Tree	Green
<i>Azadirachta indica</i>	Neem	Meliaceae	Tree	White
<i>Bauhinia recemosa</i>	Apta	Caesalpiniaceae	Tree	White
<i>Butea monosperma</i>	Palas	Fabaceae	Tree	Orange-red
<i>Lagerstroemia microcarpa</i>	Nana-bondara	Lythraceae	Tree	White
<i>Lagerstroemia reginae</i>	Taman	Lythraceae	Tree	Pink
<i>Kydia calycina</i>	Warung	Malvaceae	Tree	White
<i>Mangifera india</i>	Amba	Anacardiaceae	Tree	Green
Along the paths				
<i>Caryota urens</i>	Bherali mad	Arecaceae	Tree	Red & green
<i>Cassia fistula</i>	Bava	Caesalpiniaceae	Tree	Yellow
<i>Mammea surgia</i>	Surungi	Clusiaceae	Tree	White
<i>Phoenix sylvestris</i>	Shindi	Arecaceae	Tree	White

Botanical Name	Local Name	Family	Habit	Flower Color
<i>Nyctanthes arbor-tristis</i>	Parijatak	Oleaceae	Tree	White
Other Suggested Plants				
<i>Madhuca latifolia</i>	Moha	Sapotaceae	Tree	White
<i>Mallotus philippensis</i>	Kumkum	Euphorbiaceae	Tree	Yellow
<i>Manilkara hexandra</i>	Khirni	Sapotaceae	Tree	White
<i>Memecylon umbellatum</i>	Anjani	Melastamaceae	Tree	Bluish - Purple
<i>Michelia champaca</i>	Sonchafa	Magnoliaceae	Tree	Yellow
<i>Mimusops elengi</i>	Bakul	Sapotaceae	Tree	White
<i>Mitragyna parvifolia</i>	Kadam	Rubiaceae	Tree	Red yellow
<i>Morinda pubescens</i>	Bartondi	Rubiaceae	Tree	White
<i>Neolamarckia cadamba</i>	Kadamb	Rubiaceae	Tree	White creamy
<i>Pandanus odoratissimus</i>	Kewada	Pandanceae	Tree	Yellow golden
<i>Pongamia pinnata</i>	Karanj	Fabaceae	Tree	Pinkish white
<i>Santalum album</i>	Chandan	Santalaceae	Tree	Brownish red
<i>Sapindus laurifolius</i>	Ritha	Sapindaceae	Tree	White
<i>Semecarpus anacardium</i>	Bibba	Anacardiaceae	Tree	Greenish white
<i>Syzygium cumini</i>	Jambhul	Myrtaceae	Tree	White
<i>Thespesia populnea</i>	ParasBhendi	Malvaceae	Tree	Yellow
<i>Trema orientalis</i>	Gol	Ulmaceae	Tree	White cremy

Waste Management

1. E - waste to be segregated and handed over only to the dealer / facility authorized by Maharashtra Pollution Control Board (MPCB);
2. Batteries' waste to be segregated and handed over only to the dealer authorized by Maharashtra Pollution Control Board.

3. It is recommended that the wet garbage to be segregated appropriately which further can be processed and treated within the campus either by using vermicomposting or bio methanation process s.
4. The fertilizer from either of the methods can further be used as manure for the landscaping within the campus. If the bio methanation is to be used to treat the wet garbage, the biogas generated from the process can be used for the canteen either for common canteen / hostel canteens.
5. Chemical waste (solid/ semisolid) from the laboratories not to be disposed in municipal solid waste. Based on the physic-chemical properties of the waste, it should be handed over to the MPCB authorized chemical/ hazardous waste management facility only.
6. Recycling of papers to be used for day today printing and other activities.

Air Environment

It is recommended that only Pollution Under Control (PUC) certificate holding vehicles to be allowed in the campus.

Trees tolerant to air pollution to be planted along the fence line.

It is suggested that a detailed air pollution study of the institute campus to be carried out to identify the exact source of the air pollution and appropriate measures to be taken.

Safety Aspects

Teaching and non-teaching staff to be trained for emergency situations.

Emergency exits to be established for the spaces including laboratories.

Eye wash systems to be installed in chemistry laboratory Periodic mock drills to be conducted.

Personal Protective Equipment (PPEs) to be used at locations including chemistry laboratories to avoid any accident.

Parking safety to be followed.

Special safety features to be followed at Day school and primary school.

14 Conclusion

Conclusions

Considering the fact that the institution is predominantly an undergraduate college, there is significant environmental research both by faculty and students. The environmental awareness initiatives are substantial. The Vermin Compost plant and paperless work system practices are noteworthy. Besides, Tree Plantation Programs initiated by the administration shows how the campus is going green. Few recommendations are added to curb the menace of waste management using eco-friendly and scientific techniques. This may lead to the prosperous future in context of Green Campus & thus sustainable environment and community development. As part of green audit of campus, we carried out the environmental monitoring of campus includes Illumination, Ventilation and Indoor Air quality of the class room. It was observed that Illumination and Ventilation is adequate considering natural light and air velocity present. Being located outside the residential and market area of the city, the college gets fresh and pure air in the classrooms.



Acknowledgment

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Audit & Reporting by

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Maratha Vidya Prasarak Samaj's
K.R.T. Arts, B.H. Commerce &
A.M. Science College, Nashik.
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- College with Potential for Excellence Status by UGC, New Delhi.
- Best College Award of Savitribai Phule Pune University.
- DBT Star College.
- UGC Sponsored B.Voc. Programme & Community College.
- Affiliated to SPP University [ID No. PU/NS//ASC/012(1969)]
- Junior College Index No. J-13.17.001
- DST-FIST Sponsored.

Ref.No. : 2021-2022


Date : 11-10-2022

Whom It May Concern

This is to certify that Maratha Vidya Prasarak Samaj's Arts, Commerce and Science College, Nandgaon, Tal: Nandgaon, Dist: Nashik – 423106 has successfully undergone Environmental Status Audit focusing on water quality, solid waste management, green cover, rain water harvesting etc. the college has demonstrated some good practices beneficial for environment

Date: 11-10-2022

Place: Nashik


Dr. V.B Gaikwad
Principal

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