

A  
**Green Audit Report**  
of



**Jalgaon District Maratha Vidya Prasarak Co-op Samaj's,**

**Arts Commerce and Science College,  
Yawal**

For the year

**2020 - 21**

**Submitted by,**

**SRUSHTI EHS Consultant Services**

**(Registered under MSME, Gov. of India)**

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**CERTIFICATE****Green, Environmental and Energy Audit**

This is to certify that J.D.M.V.P. Co.-op. Samaj's Arts, Commerce and Science College, Yawal, Taluka: Yawal, Dist.: Jalgaon (Maharashtra) has satisfactorily handled the Green, Environmental and Energy audit for the college covering all the details in accordance with the required norms for the year 2020 - 21.

The audit shall assist them to develop measures to save the environment and its individual units.

  
**Dr. Kiran P. Pawar**  
DIRECTOR  
SRUSHTI EHS CONSULTANT  
JALGAON



## Preamble

The rapid environmental degradation at local, regional and global level is real, which is leading us to global “Environmental Poverty”. Stabilization of human population, adoption of environmentally sound and sustainable technologies, reforestation, and ecological restoration are crucial elements in creating an equitable and sustainable future for all humankind in harmony with nature. Thus, academic leaders must initiate and support mobilization of internal and external resources and knowledge so that their institute responds to environmental challenges.

JDMVP’s Art’s Commerce and Science College, Yawal is deeply concerned and unconditionally believes that there is an urgent need to address these fundamental problems and reserves the trends. We deeply subscribe to the fact that humans should be steward of Mother Nature and that we all have a profound responsibility to protect the earth’s resources in perpetuity. Being a premier institute of higher learning, J.D.M.V.P. Co.-op. Samaj’s Arts, Commerce and Science College, Yawal has resolved to play a major role in the education, research, and information exchange necessary for a sustained environmental campaign.

The current environmental audit represents the first stage in our efforts to build environmental sustainability on the campus. The audit was conducted by a Dr. Kiran P. Pawar (Director, SRUSHTI EHS Consultant Service, and Jalgaon). SRUSHTI EHS Services have conduct this audit not only for the institution itself, but just as importantly to be role model institution for others to emulate and bring the environmental concerns and related mitigating measures to centre stage of campus life in the village of Yawal, district – Jalgaon, the state of Maharashtra and extend locally, regionally and beyond.

The overall goals of this audit were:

- To introduce students to real concern of environment and its sustainability using the JDMVP’s Art’s Commerce and Science College Campus as a study site.
- To analyze the pattern and extent of resources use on the campus.
- To make the college a more environmentally sustainable institution of higher learning
- To bring out a status report on environmental compliance.

### **About the JDMVP, Jalgaon**

Jalgaon District Maratha Vidya Prasarak Co-operative Samaj Ltd. Jalgaon (JDMVP) was established in 1917 with the motto, 'Bahujana Hitaya, Bahujana Sukhaya' i.e. 'In the interest of the masses, for the welfare of the masses.' The college strives with the objectives of reaching out to the less privileged, to uplift the needy and poor downtrodden to open for them the avenues of higher education. The objectives encompass the goals to facilitate access to higher education for poor students from nearby villages approximately Jalgaon city for boosting their courage and confidence and develop them into sensitive youths with social and moral commitment. The institution also has objective to broaden their vision towards casteless, creedless society and promote in them the social awareness and to equip them with the knowledge and skills for self-employment opportunities.

When the institution was registered in 1917, the institution started its work with just seven students admitted for education. With the sincere efforts of the visionaries, the institution flourished with lips and bound from a single school of seven students to a multi-institute group delivering quality higher education at all levels. Today J.D.M.V.P. owns and manages 3 senior degree colleges, 30 Secondary schools, 14 Jr. Colleges, 10 M.C.V.C. centers, two Y.C.M.O.U. centers and a girl's high school a D.Ed. College and a primary school.

### About JDMVP's Art's Commerce and Science College, Yawal

J.D.M.V.P. Co.-Op. Samaj's Arts, Commerce and Science College, is established in 1983 to disseminate the value based education and Upliftment of professional skills of rural tribal masses for their complete development. The college was initially started with Arts and Commerce faculties, the institute considering the demand of the region and need of hour started science faculty in 1993. The college was established in response to direct needs of the young generation of peasants and landless worker and poor down trodden in habitants of the region, who instead of academic brilliance had no hope for higher education. Yawal is located at the base of Satpuda ranges on the bank of Harita and Sarita River. Yawal is famous for only one Maharshi Vyas Mandir in India.



The college is affiliated to Kavayitri Bahinabai Chaudhari North Maharashtra University, Jalgaon. The Institute is one of the leading and pioneering institute for educating the rural and tribal students coping them healthy support for social as well as educational life. The college provides various under graduate programmes in the faculty of Arts, Commerce and Science. The college began with few students, but today almost reached up to 1500 students registered for various courses in the faculties of the A, C.S. The college achieves its mission of creating educational atmosphere for the continuous development of such people the scholarly guidance of pioneers, president and management, principal, teaching and nonteaching staff with the proper representation of students in various committees and activities.

The college has a good infrastructure, well-equipped laboratories and ICT facilities for effective curriculum conveyance. For all round development, college has NSS and Sport unit through which students get the opportunities to participate at zonal, university, state and national level in various activities. The campus beautification is maintained through planting various trees and thus it conserves the natural beauty.

Being an old Institution, the adopted methods, systems and procedures have always been governed by conventions and practices developed by the learned senior teachers over the period of time. The ethos and values established by the first generation of dedicated faculty members have been transformed to new comers in a subtle and informal manner. It is said that, the inheritent ethos, values and conventions are rigid. However, we consider that the heritage of such ethos and values has always been a source of inspiration to gain strength and maturity to the Institution.

**The College has set the vision -**

"The educational institute dedicated that to prepare learners from tribal, rural and economically backward areas for progressive carriers by providing them with a student centered teaching and practically beneficial quality learner's experience."

**Mission:** The motto of our institute is "Bahujana Hitaya, Bahujana Sukhaya" i.e. in the interest of masses and for the social welfare of masses. Our purpose is to get quality education to those students who belong to tribal, rural and economically backward areas.

The College aspires "*To be a distinguished Institution which provides high quality education*". It wants to provide such courses which will be uniquely valued by industry and provide a firm basis for its students to build challenging careers in their professional life.



**Audit Team****External Audit (Expert) Member**

Sr. No.	Name of Auditors	Designation
1	Dr. Kiran P. Pawar	Director, SRUSHTI EHS Consultant Service, Jalgaon

**Internal Audit Team Members**

Sr. No.	Name of Auditors	Designation
1	Dr. Sandhya M. Sonawane	Principal, JDMVP's Art's Commerce and Science College, Yawal
2	Dr. Hemant Ghansham Bhangale	Assistant Professor, Dept. of Physics, JDMVP's Art's Commerce and Science College, Yawal
3	Mr. Shantaram Ramkrishna Gaikwad	Assistant Professor, Dept. of Mathematics, JDMVP's Art's Commerce and Science College, Yawal



## Executive Summary

The rapid urbanization and economic development at local, regional and global level has led to several environmental and ecological crises. On this background it becomes essential to adopt the system of the Green Campus for the institute which will lead for sustainable development.

JDMVP Art's Commerce and Science College, Yawal is intensely concerned and totally believes that there is an urgent need to address these basic problems and reverse the trends. Being a leading institution of higher learning, the college has initiated 'The Green Campus' program two years back that actively promote the various projects for the environment protection and sustainability. The purpose of the audit was to ensure that the practices followed in the campus are in accordance with the Green Policy adopted by the institution. With this in mind, the specific objectives of the audit were to evaluate the adequacy of the management control framework of Environment Sustainability as well as the degree to which the Departments are in compliance with the applicable regulations, policies and standards.

JDMVP's Art's Commerce and Science College, Yawal "Nature Club" and "Environment Committee" to perform various activities in the field of Green Campus. College is adopting zero waste discharge facility to manage the solid, liquid and e-waste.

**Solid waste management:** Around 10 kg/ day food and other waste is generated in the form of biodegradable solid waste from the canteen and tiffin. It is daily dispatched to solid waste collection vehicle of Municipal Corporation. With regard to green waste generated on campus, which includes grass clippings, leaf litter, and other landscaping related refuse is being treated for composts.

**Liquid waste management:** The college has designed the outflow of the liquid waste in such away as to prevent contamination in the campus. A properly constructed leakage proof sewer system is used for drainage.

**e-waste management:** All electronic gadgets are periodically repaired for efficient utilization and replaced under buy back scheme of supplier. Hence, minimum e-waste is generated in the campus. The remaining non-working computers, monitors and printers are discarded and scrapped on a systematic basis. If some parts are useful, in other systems they are kept aside for future use.

College is concern about water conservation, so the college authority save the runoff of rain water from the terrace of the buildings constructed in the college campus by Rain water harvesting structures. Rooftop of main building is used to collect the rain water which is used by department of chemistry for regular practical sessions. The runoff from the unpaved area is intercepted at certain locations by collection trenches. This runoff eventually facilitates groundwater recharge.

Colleges willingly accepted the green practices and strictly follow them. The college conducts campaign for students and faculty to understand the importance of environmental protection and be mindful about saving energy. The authority frequently appeals to the students and faculty to maintain the tradition of no vehicle day on Saturday. To understand the plant biodiversity of the campus, the college has been conducting census of tree, herbs and shrubs every five years since 2005. As per recent survey (2020), the college campus has rich plant biodiversity having 45 no's big tree species and 285 no's small plants species.

## Statement of Assurance

The audit has been conducted in accordance with the standard procedures for the professional practice of internal auditing.

In our professional judgment, sufficient and appropriate audit procedures were completed and evidence gathered to support the accuracy of the conclusions reached and contained in this report. The conclusions are based on a comparison of the situations as they existed at the time of the audit with the established area.

## Methodology of Audit

In order to meet its objectives, this audit combined physical inspection with review of relevant documentation and interactions with departmental staff members and students.

- **Review of the Documentation:** For the purpose of this audit Green audit frame work was reviewed.
- **Interviews:** Interviews were conducted with the principal, departmental faculties and students.
- **Physical Inspection:** The audit team was conduct physical observation in the college campus to inspect the green practices.

## Summary of Findings

The main findings of the audit show that, all the department staff and students are aware about the needed for environmental protection at a general level. It was also observed that a number of best practices such as maintaining the collection of waste separately, introduce rain water harvesting to new building structures, implementing plastic free campus etc. are followed in the college premises.

### Audit framework and detailed findings

The following audit framework is used for conducting Green Audit in 2020-21. The frame work also lists the finding and also observations for every criterion.

#### Criteria- 1 (A): Waste Generation and Management

**Objective:** Maximize the waste recycled and minimize the quantity of non-recycled refuse.

**Activity:** Segregation of waste

**Audit Observation:** Waste Material is segregated as per category like Paper, Cardboard, Scrap Wood, Scrap Metal, Plastic scrap, glass, laboratory rags etc. Each waste is stored at departmental level and periodically sending to other purposes.

Type of waste	Audit Observation
Paper Waste	<ul style="list-style-type: none"> <li>One side rough paper is used for the printing of Notices, Time Tables etc. in each department.</li> <li>Email and Mobile media communication is used for minimize the use of paper.</li> </ul>
Scrap Material	<ul style="list-style-type: none"> <li>Plastic bottles, caps and other waste material are stored separately at departmental level and handover to Yawal Nagarpalika system as a scrap material</li> </ul>
Glass Waste	<ul style="list-style-type: none"> <li>Empty chemical glass bottles are sending as a scrap material</li> </ul>
Construction Waste	<ul style="list-style-type: none"> <li>Construction waste is use for land filling and landscaping within the college premises.</li> </ul>
Electrical Waste	<ul style="list-style-type: none"> <li>Electrical waste like damaged electrical board, switches, cut wires are collect by electrician and replace this with new one and remaining wastage is sold as scrap.</li> <li>Electrical waste related to computer, key boards, and mouse is collect by Computer science department for repairing and replaces the damaged one and remaining wastage is handed over to garbage management system of Nagarpalika.</li> </ul>

**Criteria- 1 (B): Waste Generation and Management**

**Objective:** Collection of waste.

**Activity:** Students as well as faculties of different department concern about waste collection. They do not throw the paper waste in the surrounding premises of college campus.

**Audit Observation:** Proper dustbins are provided to each department. Also plastic dustbins are install at various location in the college campus for collection of waste including administration office, college canteen, near garden etc. The stored waste is collected by Nagarpalika on every day.

**Criteria- 1 (C): Waste Generation and Management**

**Objective:** Plastic free Campus.

**Activity:** Motivate students about harm of plastic carry bags and items to convince them for no use of plastic in college premises.

**Audit Observation:** To aware all students as well as faculties of different department about “No Use of Plastic” in college campus, awareness boards are display at various location in the college campus.

**Criteria- 1 (D): Waste Generation and Management**

**Objective:** Management of Garden Waste.

**Activity:** Installation of Vermi-compost bins

**Audit Observation:** The collected wastes from garden, debris, leaf latter are collect dumped into vermicomposting bins to prepare the compost manure from the waste. Eisenia Foetida species of earthworm is used for the process.

**Criteria- 2 (A): Water conservation**

**Objective:** Water conservation.

**Activity:** Rain Water Harvesting

**Audit Observation:** Rain water harvesting facility is provided to main building. Department of Chemistry collect rain water in Syntax water tank (1000 liter capacity) and use this water for practical, washing and other departmental purpose.

**Water Audit**

(Academic Year 2020-21)

**Water User Profile:***Water User Includes students, staff, visitors etc.*

- a. Total number of water users : Approx. 1000
- b. Number of Employee: 35
- c. Number of students : 961
- d. Number of visitors (daily Average) : 5 Approximately
- e. Average working days: 06
- f. Office timings: 10:00 AM to 5:00 PM
- g. Rain water harvesting system availability : Yes
- h. Is rain water harvesting system working? Yes
- i. Daily water supply (liters) :20000 liter

**Assessment of water requirement**

Sr. No.	Site	Total no. of Sources	Measurement of water Uses (Daily)				
			Rate of Discharge (Liter/min)	Average Duration of Use (min)	Average Quantity per use (liter)	No. of Uses (No.)	Total Daily Use (liter)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1.	Urinals/Bathroom	04	01	2.00	1.00	1000	1000
2.	Laboratory	05	05	05	10	80	800
3.	Canteen	01	05	300	800	01	800
4.	Garden and green campus	6,357.446 Sq. M.	04	01	02	6357.446	12714.892
5.	Other (Drinking purpose with RO)	01	0.50	10	05	700	3500
<b>TOTAL</b>							<b>18814.892</b>

**Water Source & Storage:**

Water from tube-well & Nagarpalika is directly pumped to the overhead tank

**Criteria- 2 (B):** Water conservation**Objective:** Water Saving.**Activity:** Water Audit**Audit Observation:**

- The storage (overhead/underground tank) checked periodically for any leakage.
- The departmental Tap was checked periodically to prevent from any leakage.
- The leakage Tap replace by new one.

**Criteria- 3 (A):** Energy Consumption (Electrical Energy)**Objective:** To save the electrical energy.**Activity:** Propose to Installation of “Solar Panels” at main building.**Audit Observation:** Installation of solar panels is sanctioned and in progress at main building to save the electrical energy using natural resource.**Criteria- 3 (B):** Energy Consumption (Electrical Energy)**Objective:** To save the electrical energy.**Activity:** Installation of LED light at administration.**Audit Observation:** LED lights are installed to office area so conserve the electrical energy instead of tube lights.**Criteria- 3 (C):** Energy Consumption (Electrical Energy)**Objective:** To save the electrical energy.**Activity:** Conservation of Electrical Energy at Departmental Level**Audit Observation:**

- All laboratory having panel boards MCB switch to control the electrical supply within the department. The responsibility is given to non-teaching staff to “Switch-off” this switch without any ignorance to avoid the wastage of electrical energy.
- Sign boards like “Switch off the fans / light when not in use” are displayed in the departments.
- The water pumps are regularly maintained for minimum consumption of electricity.
- Solar panel system is in progress for entire college campus.
- LED lamps, LCD monitors, Branded fans are used to minimize the consumption.



**Criteria- 4:** Energy Consumption (Transportation)

**Objective:** To save the fuel energy.

**Activity:** Motivate to students and faculties for reduce the use of vehicles in college campus.

**Audit Observation:** Every Saturdays of each month is declared as a “No vehicle day” by college authority to minimize the use of personal vehicles with in the college campus. To motivate and aware the students regarding minimum use of vehicles “Cycle Day” programme is arranged by college facility.

**Criteria- 5:** Energy Consumption (LPG Cylinder)

**Objective:** To save the LPG energy.

**Activity:** Conserve the LPG at departmental Level

**Audit Observation:**

- The gas burners, tubes are checked periodically to prevent the leakages of gas.
- Slow flame is adjusted during the practical work to minimize the excess use of gas.
- The practical is listed as per use and non use of LPG
- The empty cylinder are stored centrally and labeled as “EMPTY”
- The use and requirements of each department about LPG is monitored by controlling sheet and send to office.

**Criteria- 6:** Air Quality of the Campus

**Objective:** To assess the air quality of Campus.

**Activity:** The status of ambient air pollution will be monitored by using High Volume Sampler (Envirotech APM 460 BL Respirable Dust Sampler-RDS). SPM samples were collected with the help of high volume sampler on cup for 24 hr. with air flow rate of 1- 1.5 m<sup>3</sup> min<sup>-1</sup>. The difference in initial and final weights of the cup and filter paper was give the total quantity of SPM collected over the 24 h period. Measurement of SO<sub>2</sub> (µg m<sup>-3</sup>) in the ambient air will be analyzed by the West- Gaeke method (1956) and NO<sub>2</sub> (µg m<sup>-3</sup>) gas by the modified method of Jacob and Hochheisher (1958).



RDS Sampler

**Audit Observation:**

Google Earth Image of College Campus with Monitoring Locations

Location Code	Locations	Parameters		
		SOx	NOx	SPM
L-1	Main Gate	22.98	65.42	201.8
L-2	Left Side of the college	24.49	61.98	160.3
L-3	Right Side of the college	24.86	59.82	178.8
L-4	Back side of the college	21.62	57.72	152.2
NAAQS Limits		80	80	200

**Status of Ambient Air Quality within the premises of College**

**Criteria- 7: Green Campus**

**Objective:** To increase the Green Cover within the college campus.

**Activity:** Establishment of Botanical garden, Green House and Shade Net House

**Audit Observation:** To understand the plant biodiversity of the campus, the college has been conducting census of tree, herbs and shrubs every five years. As per recent survey (2020), the college campus has rich plant biodiversity including 45 big tree species and 285 small plant species.



**Green Cover within the College Campus - 1**





**Green Cover within the College Campus - 2**



**Green Cover within the College Campus - 3**



### **Good Practices conducted by the College**

- College celebrates “World Environment Day” on 5<sup>th</sup> June every year.
- The NSS Department every year managed a programme on tree plantation and their nurturing to aware the students and the nearby society about the maintenance of the environment. The result is that we have a beautiful green campus.
- World Ozone Day is celebrated each year on 16<sup>th</sup> September to spread the awareness among the students about the depletion of the ozone layer and to take certain steps for the solution of the problem.
- Our environment is becoming increasingly contaminated because of the

technological development. To aware the people and students about it Earth Day is celebrated on 22 April every year.

- General Test on Biodiversity was observed by Science Department on 22 May 2021.
- Organized “Fire Fighting Training” for the non-teaching staff & students of Chemistry / Laboratory.

### Facts findings related to Unsafe Condition

Sr. No.	Unsafe Condition	Observations	Recommandations
1		Loose electrical connection is observed at laboratory. This may cause the electrical hazard or fire to generation of sparks.	Always used a proper pin/socket to plug the electrical wire to avoid the electrical caution.
2		Damaged electrical board is observed at one classroom. This may cause electrical caution.	Replaced the damaged electrical board(s) with new one. Ensure that, the electrical boards are always in good condition to avoid the electrical caution.



### Recommendations

Following the audit, several recommendations were made to the college authority by external audit team.

Sr. No.	Criteria	Recommendations
1	Paper Use	Use email communication for Internal/departmental notices to minimize the use of paper
2	Lighting (Energy)	Use LED light instead of regular tube light to conserve the electricity.
3	Vehicles	Monitoring the PUC of every vehicle within the campus at least once in a year to minimize the vehicular pollution load.

### Declaration

I agree with all the recommendations and observations mentioned in this report.

Original signed with college seal by,



**Dr. Sandhya M. Sonawane**  
(Principal)  
**ACT, PRINCIPAL**  
**J.D.M.V.P.CO-OP.SAMAJ's**  
**ARTS, COMMERCE & SCIENCE**  
**COLLEGE, YAWAL, DIST. JALGAON**

