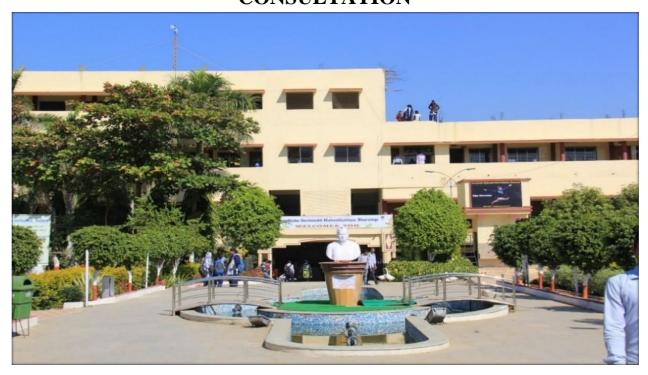




GREEN AUDIT REPORT CONSULTATION



Arvindbabu Deshmukh Mahavidyalaya

Bharsingi, Tah. Narkhed, Dist. Nagpur Year-2021-22

PREPARED BY

EMPIRICAL EXERGY PRIVATE LIMITED

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(2021-22)





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We are indeed touched by the helpful attitude and co-operation of all faculties and technical staff, who rendered their valuable assistance and co-operation the course of study.



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Audit Team

The study team constituted of the following senior technical executives from **Empirical Exergy Private Limited**,

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Green Monitoring Committee







Integrated Policy

Dr. Prakash Pawar Officiating Principal

STD: 07105 NAAC Re-accredited with 'B'" Grade VSPM Academy of Higher Education

ARVINDBABU DESHMUKH MAHAVIDYALAYA

BHARSINGI, Dist. Nagpur - 441305

Ref.No.: ADM/2022/346

Date 13 | 09 | 12 7

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Integrated Energy, Environment & Green Policy

Management of our institution is committed to go green for making our nation to Atma-Nirbhar (Self-Sustainable) in area of energy and environment

Our emphasis is to:-

- Ensure continuous enhancement in our energy and water conservation and usage.
- Continuous monitoring the energy consumption pattern through periodic reviews and using latest informative system.
- · Procure and use energy efficient equipment's and products.
- · Create awareness regarding necessity of energy conservation and making environment pollution free to all the stakeholders by arranging awareness activity such as seminar, webinar, rallies and guest lectures etc.
- · Carry out regular energy, environment and green audit by certified auditors to identify the areas for improvement.

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EXECUTIVE SUMMARY

Green Initiatives Taken by College

LAMPAIGN OF PLANTATION AND GREEN CAMPUS

College has around **667** trees in the campus. It is good initiative taken by management for green campus under the campaign of plantation. **It is APPRECIABLE.**

AUDIT RECOMMENDATION

4 5 Dust bin system

It is observed that college has adopted single dust bin system for all kind of waste generated in college campus. It is recommended to 5 dust bin system for segregation of all type of waste

QR code system on tree

While the world seems to be going digital, people lack the time to read books and process the information they contain. Hence, college can provide QR codes on the trees for its information and to exploit the rapidly growing platform for a unique purpose.





INTRODUCTION

1.1 About College

Arvindbabu Deshmukh College of Arts, Science and Commerce also well known as AD College, was established in 1986. In its journey during the past 35 years it has grown in strength from 75 students from its inception to a total strength of 2000 students today. Also there are 1300 students studying in YCMOU through this college. Under the affiliation of Rashtrasant Tukadoji Maharaj University of Nagpur. College offers undergraduate and post graduates programs like B.A., B.Com. From 1986 and later in 2008 B.Sc. and M.A. has been started. The college is also identified as community college under scheme of UGC and running a skill oriented diploma course in Welding and Fabrication. Beside that the college also runs as-on courses like Fashion designing and Communicative English. Listed in first top ten for the graduation course in mass media. College having units such as N.S.S. of 250 students, college awarded with best college for N.S.S. by R.T.M.N.U., Nagpur. College having very active sport department. Every year students are performed at National, State, University level and received Gold, Silver and bronze medal. Our college organized International, National, State and University level Conferences, Seminars and Workshops in various subjects. College is popular for its cultural, sports and drama activities and infrastructural facilities.



Figure 1.1: - Satellite Image of Arvindbabu Deshmukh Mahavidyalaya





Vision and Mission:-

VISION

To become a centre of quality education by promoting high academic and social pursuit and competencies of students of rural region for all round development

MISSION

- To impart higher education for all round development of students of rural area and provide them an opportunity to made them competent for development in society
- The priority of the institution is to bring academic excellence along with personality development to compete with the rest of the world.
- The institution is located in the remote area so maximum students belong to backward communities and socio – economically weaker section so provide them opportunity to make themselves competent.
- To provide opportunity in future by providing them quality education, skilled base programme, competitive examination guidance, sports facility etc.

Sr. No.	Floor	Department
1.	Ground floor	Administration office, Principal cabin, Classrooms
2.	First floor	Examination cell, IQAC room, Classrooms, Computer lab
3.	Second Floor	Science Laboratory, Audio visual hall, classroom, Girls common room
4.	Third floor	Classrooms, Boys common room
5.	Indoor stadium area	Indoor stadium, gymnasium, college canteen,
6.	Girls hostel	Hostel rooms, Canteen, warden room
7.	Playground	Playground, Basketball court, parking





Name of Buildings in campus and Build up area of Buildings

Sr. No.	Building	Department
1.	Main Building	3033.115 Sq. M.
2.	Indoor	1176. 15 Sq. M.
3.	Hostel	1458.114 Sq. M.
4.	Canteen	140 Sq. M.

Number of courses:-04

Name of courses: - Bachelor of Arts, Bachelor of Science, Bachelor of Commerce, Master of Arts (Marathi)

Sr. No.	Name of teaching Departments
	Department of Marathi
1	T
2	Department of English
3	Department of History
4	Department of Political science
5	Department of Economics
6	Department of Music
7	Department of Home-economics
8	Department of Chemistry
9	Department of Botany
10	Department of Zoology
11	Department of Physics
12	Department of Mathematics
13	Department of Commerce





1.2 About green auditing

Eco campus is concepts implemented in many educational institutions, all over the world to make them sustainable because of their mass resource utilization and waste discharge in to the environment.

Green audit means to identify opportunities to sustainable development practices, enhance environmental quality, improve health, hygiene and safety, reduce liabilities achieve values of virtue. Green audit also provides a basis for calculating the economic benefits of resource conservation projects by establishing the current rates of resource use and their associated costs.

Green auditing of "Arvindbabu Deshmukh Mahavidyalaya, Bharsingi, Dist. Nagpur" enables to assess the life style, action and its impact on the environment. This green audit was mainly focused on greening indicators like utilisation of green energy (solar energy) and optimum use of secondary energy sources (petrol and diesel) in the college campus, vegetation, and carbon foot print of the campus etc. The aim of green auditing is to help the institution to apply sustainable development practices and to set examples before the community and young learners.

1.3 Objectives of Green Auditing

The general objective of green audit is to prepare a baseline report on "Green campus" and alternative energy sources (solar energy), measures to mitigate resource wastage and improve sustainable practices.

The specific objectives are:

- ♣ To inculcate values of sustainable development practices through green audit mechanism.
- Providing a database for corrective actions and future plans.
- ♣ To identify the gap areas and suggest recommendations to improve the green campus status of the Colleges





1.4 Audit of Green Energy

According to the **Environmental Protection Agency** (**EPA**), green energy provides the highest environmental benefit and includes power produced by solar, wind, geothermal, biogas, low-impact hydroelectric, and certain eligible biomass sources. Green energy can also reduce your carbon footprint and achieve a sustainable lifestyle.







CHAPTER- 2 GREEN CAMPUS

2.1 Green Audit

In the survey, focus has been given on assessment of present status of diversity in form of plants, in college campus and efforts made by the college authorities for nature conservation. Campus is located in the vicinity of approximately more than **667 Trees** medicinal herbs ornamental plants. The detail is given below

2.2 List of plants in college campus

Sr.No.	Botanical name Common name		Quantity
1.	Abies sp.	Indian silver fir.	3
2.	Abrusprecatorius	Gunja	2
3.	Acacia leucophloea	Safed Babul	3
4.	Acasianilotica	Babool	3
5.	Acorus calamus	Bekhand	1
6.	Agave sp.	Century plant	5
7.	Allium ursinum	Wild Garlic	1
8.	Alstoniascholaris	Saptaparna	2
9.	Amomum subulatum	Black Cardamom	1
10.	Annona squamosa	Sitaphal	3
11.	Argeria nervosa	Adhoguda	1
12.	Averrhoe carambola		
13.	Azadirachta indica	Neem	43
14.	Bamboo sp.	Bamboo	9
15.	Bixa oreliana	Lipstick Tree / Annatto	1
16.	Bougainvillea glabra	Booganvel	16
17.	Butea monosperma	Palas	3
18.	Caesalpinia bonduc	Sagargoti	1
19.	Calatropisprocera	Rui	2
20.	Canna sp.	Kardali	
21.	Carissa carandas	Karanda	6
22.	Cassia fistula	Bahava	2
23.	Chamaecostuscuspidatus	Pushkarmula	1
24.	Cinnamomum verum	Dalchini	1
25.	Citrus lemon	Lemon	1
26.	Couropitaguianensis	Kailasapati	1
27.	Cycas sp.	Cycas	6





Sr.No.	Botanical name	Common name	Quantity
28.	Delonix regia	Gulmohar	1
29.	Dhatura alba	Dhotra	6
30.	Eichhornia crassipes	Kendad	7
31.	Equisetum	Horsetail	1
32.	Euphorbia milli	The crown of thorns	15
33.	Ficus carica	Anjeer	1
34.	Ficus elastic	Rubber tree	2
35.	Ficus sp.1	Ficus	24
36.	Ficus sp.2	Ficus	9
37.	Gymnemasylvestre	Gurmar	1
38.	Holoptelea integrifolia	Papra	1
39.	Hydrilla sp.	Waterthyme	1
40.	Ixora sp.	Pentgul	17
41.	Jasmine	Jasmine	9
42.	Jatropha integerrima	Peregrina	1
43.	Justicia adhatoda	Adulsa	2
44.	Lantana camara	Ghaneri	25
45.	Lawsoniainermis	Henna	70
46.	Lily	Lily	4
47.	Madhuka indica	Moh	2
48.	Marsilea sp.	Water-Clover	5
49.	Mesua ferrea	Nagkesar	1
50.	Moringa oleifera	Shevga	7
51.	Murrayakoenigii	Kari patta	1
52.	Musa sp.	Banana	1
53.	Myristica fragrans	Nutmeg	1
54.	Neolamarkiakadamba	Kadam	2
55.	Nerium sp.	Kaner	10
56.	Ocimumtenuiflorum	Tulsi	1
57.	Oroxylum indicum	Tetu	1
58.	Palm sp.	Palm	5
59.	Passiflora foetida	Passionflower	1
60.	Passiflora incarnate	incarnate Passionflower	
61.	Phyllanthus emblica	Amla	34
62.	Piper longum	Pimpli	1
63.	Pisonia alba	Variegated Pisonia	1
64.	Pistia stratiotes	Water Cabbage/ Jalamandavi,	25
65.	Pithocelobiumdulci	Vilayatichincha	1





Sr.No.	Botanical name	Common name	Quantity
66.	Plumaria alba	Chafa 7	
67.	Polyalthia longifolia	Devdar/ Ashoka 48	
68.	Pongamia pinnata	Karanj	19
69.	Premna integrifolia	Ranatakali	1
70.	Prunus dulcis	Badam	12
71.	Psidium guajava	Peru	1
72.	Pterocarpus santalinus	Red sanders	1
73.	Putranjivaroxburgii	tranjivaroxburgii Patravanti	
74.	Roses varieties	Roses varieties Gulab	
75.	Royal Palm sp.	Royal Palm	12
76.	Santalum album	Chandan	3
77.	Saracaasoka	Ashok 1	
78.	Sciziziumcumini	Jamun 1	
79.	Tecoma stans	Futani 2	
80.	Tectona grandis	Sagwan 55	
81.	Thevetia peruviana	Bitti	
82.	Thuja sp.	Morpankhi 54	
83.	Zizipuszuzuba	Ber	10
	Total no. of plants		667

College has **667 Trees** in the campus. This is good initiative taken by management for green campus under the campaign of plantation. **It's APPRECIABLE.**

Some photographs of green campus & plantation







CHAPTER- 3 WASTE MANAGEMENT

3.1 About Waste:

Human activities create waste, and it is the way these wastes are handled, stored, collected and disposed of, which can pose risks to the environment and to public health waste management is important for an eco-friendly campus. In College different types of wastes are generated, its collection and management are very challenging.

Solid waste can be divided into three categories: bio-degradable, non-biodegradable and hazardous waste. A bio-degradable waste includes food wastes, canteen waste, wastes from toilets etc. Non-biodegradable wastes include what is usually thrown away in homes and schools such as plastic, tins and glass bottles etc. Hazardous waste is waste that is likely to be a threat to health or the environment like cleaning chemicals, acids and petrol.

Unscientific management of these wastes such as dumping in pits or burning them may cause harmful discharge of contaminants into soil and water supplies, and produce greenhouse gases contributing to global climate change respectively. Special attention should be given to the handling and management of hazardous waste generated in the College. Bio-degradable waste can be effectively utilized for energy generation purposes through anaerobic digestion or can be converted to fertilizer by composting technology. Non-biodegradable waste can be utilized through recycling and reuse. Thus, the minimization of solid waste is essential to a sustainable College. The auditor diagnoses the prevailing waste disposal policies and suggests the best way to combat the problems.

Table 3.1 Different types of waste generated in the college Campus.

Sr.No.	Types of Waste	Particulars Particulars
1	Solid wastes	Damaged furniture, paper waste, paper plates, food wastes etc.
2	Plastic waste	Pen, Refill, Plastic water bottles and other plastic containers, wrappers etc.
3	E-Waste	Computers, electrical and electronic parts etc.
4	Glass waste	Broken glass wares from the labs etc.
5	Chemical wastes	Laboratory waste etc.
6	Bio-medical Waste	Sanitary Napkin etc.





3.2 Waste management practices adopted by the college

College has a different type of waste generated like paper, Plastic, dust and wet waste. The college provided dust bin near classroom office, laboratories staffroom and collect the waste material at the end of the day. The waste (Especially dry material) is collected in a big dustbin which is provided at every floor and the next day collected Municipal Corporation for further processing.



Figure 3.1 Dust Bin system use by college

Recommendation

It is recommended adopted 5 dust bin waste collection system for collect different type of waste generated in college premises.



Recommended 5 Dust bin waste collection system





3.3 Waste Collection Points

Audit team also visited various departments, canteen, to find out waste generation area and waste collection points for further improvement. Details are given in the table

Detailed of waste collection dust bin system

Sr. No	Location/ Name of Building	Type of waste	Type of Colour	Quantity (no)
1	Admin Building	Solid	Blue	10
2	Admin Building	Semi solid	Yellow	5
3	Admin Building	Glass waste, e-waste	Green	5
4	Hostel Building	Solid	Blue	7
5	Hostel Building	Semi solid	Green	3
6	Indoor stadium	Solid	Yellow	7
7	Canteen	Solid	Blue	1
8	Canteen	Semi solid	Yellow	1







CHAPTER- 4 RECOMMENDATIONS AND SUGGESTIONS

4.1 QR Code system

While the world seems to be going digital, people lack the time to read books and process the information they contain. Hence, College can be provided QR codes on the trees for its information and to exploit the rapidly growing platform for a unique purpose.



Fig: 4.1 QR code system for plants

These codes can give students all the information they need to know about the tree — from its scientific name to its medicinal value. They only need to put their smart-phones to use. QR codes to them, making it easier for everybody to learn about a plant or a tree at the tip of their fingers," If any app generating a QR code, which is available for free on the online stores, can be used to avail the information of the trees.

Lesson Eco-restoration programmes

Frame long-term eco-restoration programmes for replacing exotic Acacia plantations
with indigenous trees and need of the hour is to frame a holistic campus development
plan.





4.2 Other Suggestions

Some of the very important suggestions are: -

- ♣ Adopt the proposed Environmentally Responsible Purchasing Policy, and work towards creating and implementing a strategy to reduce the environmental impact of its purchasing decisions.
- Increase recycling education on campus.
- ♣ Increase Awareness of Environmentally Sustainable Development in College campus.
- ♣ Practice Institutional Ecology- Set an example of environmental responsibility by establishing institutional ecology policies and practices of resource conservation, recycling, waste reduction, and environmentally sound operations.
- ♣ Involve All Stakeholders- Encourage involvement of government, foundations, and industry in supporting interdisciplinary research, education, policy formation, and information exchange in environmentally sustainable development.
- ♣ Collaborate for Interdisciplinary Approaches- To develop interdisciplinary approaches to curricula, research initiatives, operations, and outreach activities that support an environmentally sustainable future.
- **♣** Increase reduces, reuse, and recycle education on campus.
- ♣ Develop a butterfly garden that arouses appreciation towards flora and fauna diversity.
- ♣ Name all the trees and plants (Plant DNA barcodes) with its common name and scientific name.
- ♣ Arrange training programmes on environmental management system and nature conservation.
- ♣ Renovation of cooking system in the canteen to save gas by installation solar water heater system with heat pump.
- ♣ Establish a procurement policy that is energy saving and eco-friendly.





END OF THE REPORT THANKS