B. P. H. E. SOCIETY'S
AHMEDNAGAR COLLEGE, AHMEDNAGAR
A Christian Minority Institution
Affiliated to Savitribai Phule Pune University. Id No. PU/AN/ASC/01/1947

Dr. R.J. Barnabas
Principal

- 'B++' Grade Accreditation by NAAC, Bangalore • 'College with Potential for Excellence' Award by the UGC, New Delhi
- 'Best College' Award by the Savitribai Phule Pune University • 'Educational Excellence Award' by the Brands Academy, New Delhi
- 'Most Promising Educational Institute in Maharashtra' by Worldwide Achievers, New Delhi
- 'International Quality Award for Excellence in Higher Education' by Brands Impact
- 'Best College in Maharashtra for Innovative Educational Programs' by APS Research and Media
- 'The Most Promising Degree College in West India' by Prime Time Research Media Pvt. Ltd.
- A.I.S.H.E. Code : C-41242

Policy document on environment and energy usage
Certificate from the auditing agency

Ref. No. ACA/2020-21/Green Campus

Date : 20/09/2020

Green Campus Initiative

Green Committee

Following committee members constitutes the Green Committee.

- Dr. R. J. Barnabas — Chairperson
- Prof. B. M. Gaykar — Co-ordinator
- Dr. Sudhir Bale — Member
- Dr. Sayyed Razzak — Member
- Mr. Dipak Alhat — Member

Principal

Principal
Ahmednagar College
Ahmednagar (IQ)

S. P. H. E. SOCIETY'S
AHMEDNAGAR COLLEGE, AHMEDNAGAR
A Christian Minority Institution
Affiliated to Savitribai Phule Pune University, Id No. PU/AN/ASC/011/947
• 'B++' Grade Accreditation by NAAC, Bangalore • 'College with Potential for Excellence' Award by the UGC, New Delhi
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Dr. R. J. Barnabas
Principal

Notice

Green Campus Committee

Dr. Sudhir Bale

Dr. Avinash Gawade

Dr. Pravin More

Dr. Mahadev Jadhav

Mr. James Kasbe

The above mentioned staff members are constituted as Green Campus Committee. They are hereby informed to attend the meeting scheduled dated on **4/11/2022** at **11:30 am** in Internal Quality Assurance Cell.

Committee objectives:

The committee members shall meet once in a Month. Committee will prepare protocol and action plan adhering standard protocol. Committee will work in following areas:

1. Restricted entry of automobiles
2. Pedestrian-friendly pathways
3. Reduce use of plastic
4. Landscaping.

Committee will make policy documents in this regard and maintain its record through a short report and Geo-tag photographs etc.

IQAC
Coordinator

Co-ordinator
IQAC
Ahmednagar College

Principal

Principal
Ahmednagar College
Ahmednagar (IQ)

B.P.H.E Society's

Ahmednagar College, Ahmednagar

Green Campus Committee

Date:

To,
The Principal,
Ahmednagar College, Ahmednagar

Subject: **Regarding compliance on Green Audit**

Reference: **ACA/20-22-23/Green Audit/02 dated 02/05/2023**

With the above reference letter received from Ahmednagar College, Ahmednagar containing recommendations given by the Green Audit Report submitting the action plan for your perusal.

Recommendations received from Green Audit Agency:

1. Water saving fixtures need to be placed at wash basin and taps
2. Need for wet waste composting system
3. Rain water harvesting of entire roof top should be done in future
4. Ambient air monitoring needs to be done twice a year pre and post monsoon
5. Carbon foot print needs to be established
6. LED bulb and motion sensor can be initiated
7. Climate change approach needs to be focussed
8. Efforts need to be strengthened Biodiversity activities
9. Information Education and Communication (IES) needs to be conducted for energy conservation.

Proposed action plan suggested by Green Campus Committee:

1. Water saving fixtures need to be placed at wash basin and taps:

Suggestion:

Replacing the water saving fixtures throughout the water system of the institute may not be feasible. However the damaged taps could be replaced with water saving fixtures.

Pressure reducing and stop valves could be placed wherever necessary to reduce the water wastage.

Prof. Dr. P.C. Bedarkar
10/2023

2. Wet Waste composting system:

Suggestion:

A functional vermi-compost unit is already established in the college premise which is working under the Department of Zoology. Wet waste generated at canteens, departments is regularly deposited in the unit.

New wet waste composting system could be established near Department of Microbiology. Department of Microbiology should be informed to take care of the system. The organic waste generated at the department could be used for composting purpose and the process could be made more efficient by using consortia of suitable microbes.

3. Rain water harvesting of entire roof top:

Suggestion:

The roof top of building of chapel, library shed, biotechnology, BBA department, common classrooms, botany department, RCDA building, ladies hostel, gents hostel(s), Psychology department, Geography department, Marathi department, canteen (Canteen 1 and 2) could be considered as the sources of rain water harvesting.

Construction of suitable structures could be undertaken so as to harvest the rain water from these areas and storage of the same for its future use.

Big size artificial pond should be constructed to store the collected water. The same pond can serve the dual purpose storage of harvested water and beautification of the campus by making appropriate modifications.

4. Ambient air monitoring needs to be done twice a year pre and post monsoon:

Suggestion:

Due to vast vegetation it is unlikely for the air on the campus to be polluted as well as the threshold level of particulate matter and aerosols of the Ahmednagar districts itself are not alarming.

However, for pre and post monsoon monitoring, the services could be outsourced and data received be used for further action.

Air monitoring devices or sensors could be installed at specific point on the campus for continuous monitoring system.

5. Carbon foot print needs to be established:

Suggestion:

Qualitatively, the Ahmednagar College already has the low carbon foot print and at healthy level because of the several reasons; the vehicles are not allowed

on the campus (all vehicles are parked in central parking facility), vast vegetation (green biomass) and continual tree plantation on the campus, the functional solar panel which saves about half the electricity requirement of the college and recycling of the campus waste in the composting unit.

However, if at all necessary, carbon foot print could be established by outsourcing the task to appropriate agency.

6. LED bulb and motion sensor can be initiated:

Suggestion:

College has already adopted the policy of replacing the non-working lights with LED tubes and bulbs. At present most part of the lighting on the campus comes from LED type of lighting system.

Motion sensor fans could be installed in all classrooms, laboratories and offices.

7. Climate change approach needs to be focussed:

Suggestion:

To focus the climate change approach, number of activities is undertaken by the college including the continual tree plantation programs on and off the campus by NCC, NSS units of the college. The other departments could also be encouraged to carry out such activities.

The lectures on climate change and environmental awareness are also arranged to create awareness among the students. All students, as a part of curriculum learn the environmental awareness where topics on the climate change is emphasised.

More number of seminars, workshops could be arranged by the relevant departments to create awareness about climate change.

Staff and students could be motivated to use environment friendly vehicles once in a week, use of public transport, plantation of the trees off the campus etc.

8. Efforts need to be strengthened Biodiversity activities:

Suggestion:

Plantation programs are continuously undertaken on the college campus since last 20 years.

3600+ different plant species are dwelling on the college campus.

Every year we are adding approximate 200 plants under the NCC, NSS, Unnat-Bharat out-reach activities.

Department of zoology has undertaken the activity to establish the butterfly garden in the area behind the bust of Dr. B. P. Hivale.

To enrich the biodiversity, additional and different medicinal plants could be planted at specific area on campus.

9. Information Education and Communication (IES) needs to be conducted for energy conservation:

Suggestion:

Every under graduate second year student opt for Environment Science credit course. Students are made aware on energy conservation through the out-reach activities. Flex and banners mentioning importance of the energy conservation is displayed on the campus. Workshop/Hands on training on 'Assembling Solar Panel' is offered to the under-graduate and post graduate students.

Number of seminars, workshops could be arranged by several departments to create awareness about energy conservation among the students.

Awareness camps could be conducted by relevant departments regarding energy conservation on and off the campus.

Science association could play important role regarding this aspect by arranging the appropriate industrial visits of the students, expert lectures, awareness camp, seminars, guest lecture etc.

23/6/23

Dr. Sudhir R. Bale (Chairman)

23/6/23

Dr. Pravin D. More (Member)

23.6.2023

Dr. Madhav S. Jadhav (Member)

23/06/2023

Dr. Avinash E. Gawade (Member)

BPHE Society's
AMEDNAGAR COLLEGE, AHMEDNAGAR
Internal Quality Assurance Cell (IQAC)
(2022-23)

Visit on Green Audit: BPHE Society's Ahmednagar College, Ahmednagar is located on 32.9 acre land. In the process of NAAC Accreditation, the institute initiated the process of Green Audit. For this purpose the institute requested to the Shashwat Eco Solution Foundation, Pune to make a green audit of the Campus and give their valuable suggestions and guidelines.

On 20th August 2022, Ms Thakur Pradnya, Shashwat Eco Solution Foundation, Pune visited to the Ahmednagar College, Ahmednagar, observed different locations of the campus and gave her inputs in preparation of the data for Green Audit.

Co-ordinator
IQAC
Ahmednagar College

Principal
Ahmednagar College
Ahmednagar (IQ)

CERTIFICATE OF COMPLETION

This is to certify that

The Bhaskar Pandurang Hivale Education Society's

Ahmednagar college

Station Road, Ahmednagar - 414001, Maharashtra

has successfully completed

Green Audit

Dated 10/04/2023

The Report prepared by Shashwat Eco Solution Foundation, Pune

Audited by

Mrs Manisha Gawande

Lead Auditor ISO 140001 – UDN 267863

Sinhgad Institutes

Green / Environment Audit Report

The Bhaskar Pandurang Hivale Education Society's

Ahmednagar college

Ahmednagar, Maharashtra

Audited by:

Mrs Manisha Gawande

Lead Auditor ISO 140001 – UDN 267863

Prepared by: Shashwat Eco Solution Foundation, Pune

YEAR: 2022

Table of Contents

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Abbreviations:

Kw: Kilo watt
lit: Litre
RWH: Rainwater Harvesting
IEC: Information, Education and Communication
Yr: Year
Kg: Kilogram
Cu M: Cubic Meter
Sq M: Square Meter

Reference

https://www.encon.be/en/calculation-co2-offsetting-trees
reference for oxygen by single tree per year:
https://www.usda.gov/media/blog/2015/03/17/power-one-tree-very-air-we-breathe#:~:text=It%20is%20proposed%20that%20one,have%20had%20on%20our%20environment.
1 pound = 0.453592 kg

https://www.epa.gov/greenvehicles/greenhouse-gas-emissions-typical-passenger-vehicle

Disclaimer

Green Audit team has prepared this report for The Bhaskar Pandurang Hivale Education Society's Ahmednagar college, Ahmednagar, based on input data submitted by the representatives of college, complemented with the best judgement capacity of expert team. While all reasonable care has been taken in its preparation, details obtained in this report have been compiled in good faith based on information gathered.

It is further informed that the conclusions are arrived following best judgement and no representation, warranty or undertaking, expressed or implied is made and no responsibility is accepted by audit team in this report or for any direct or consequential lost arising from any use of the information, statements or forecasts in the report

Prepared by

Shashwat Eco Solution Foundation.

Authorised Signatory

Audited by

Mrs Manisha Gawande

ISO certified Auditor – UDN 267863

A. Background

I. About Ahmednagar College, Ahmednagar

Figure 1: College building Photo

The Bhaskar Pandurang Hivale Education Society's Ahmednagar college is established in 1947 as a first center of higher education in Ahmednagar District. It is first and oldest institution of Ahmednagar District. A premier institution of learning for traditional as well as new age subjects. The name of the college is synonymous with Quality Education. It is affiliated to the University of Pune.

II. About Green Audit:

As we know about climate change and impact on livelihood. Our resources are limited and there is need to optimize the resources for future generation. Also a need is to create socially, environmentally responsible future citizen and so' Catch Them Young! The Green Audit is one of mandate for educational Institution under NAAC -7.1.6 Quality audits on Green / environment regularly undertaken by the Institution.

a. Objective

This audit gives insight of Water foot print, carbon foot print, waste management and energy conservation

b. Methodology and Scope

i. Methodology

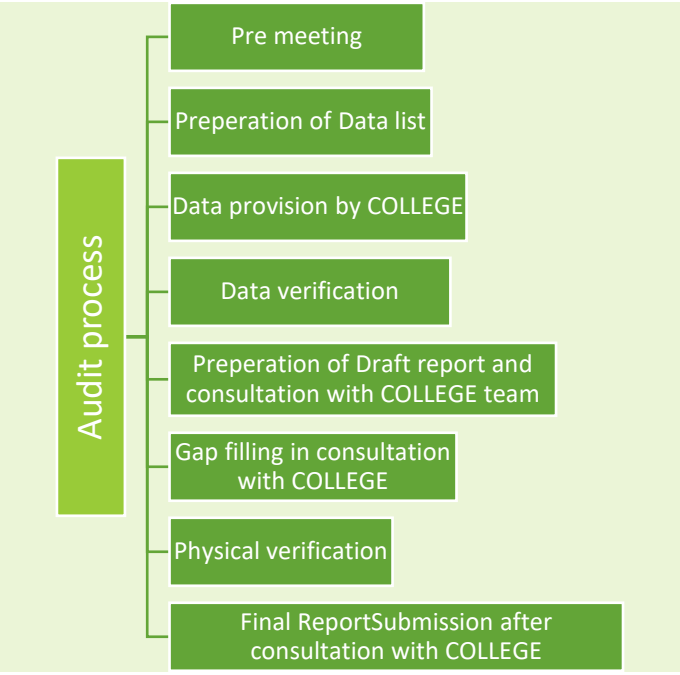

Figure 2: Green Audit process chart

ii. Scope

1. 'Green Audit' is an audit of environmental initiatives taken by educational Institutions i.e. Colleges on the basis of data available le from colleges. and the components as on executed by the Institution under below areas:
2. Solar initiative at college.
3. Power saving initiative.
4. Water saving measures and rainwater harvesting initiative
5. Waste segregation and disposal for Solid waste / composting of kitchen waste if any.
6. Pre- treatment in the form of septic tank and disposal in drainage for Liquid waste
7. Green belt (no of trees count) for carbon di oxide reduction.
8. Green learning initiative for students and any project on environment by students

c. Team of Expert:

Name of Expert	Year of Experience	Brief Experience
Mrs Manisha Gawande	25+	Certified Lead Auditor for ISO 9001, 140001 and NABL certification
Mrs Pradnya Thakur	25+	• Expertise in Sanitation, Solid Waste management and Water • Impact and Need assessment study • Strategy and planning • Environment Audit of Industries • Trainer for WASH
Dr Aditi Kale	25+	• Statistician • Management consultant

B. Baseline Data:

I. Demographic Profile of Institute:

a. Population

1. College Population:

Table 1: Population data

Sr No	College Population	Number
A	**Students**	**4424**
i	Boys	
ii	Girls	
B	**Teachers**	**118**
i	Male	90
ii	Female	28
C	**Non-teaching staff**	**67**
i	Male	62
ii	Female	5
D	**Cleaning Staff**	**5**
i	Male	2
ii	Female	3
	Total	**4614**
	Around	**Around 5000 students**

2. Hostel Population:

Hostel	Capacity of Students accommodation	Actual students' accommodation at hostel	No of Rooms	Toilet seats	Bathroom	Wash Basins
Boys Hostel		180		77		14
Girls Hostel		90		70		12
Teaching staff quarters	5	23		5		3

C. Green Components of Audit

I. Water

a. Water Consumption:

1. Source of Water: Ahmednagar Corporation and wells / Borewells in the campus
2. Total Water consumption: around 36.43 cu M/day so 7285.6 Cum/year
3. Other purpose water consumption is 26.11 Cu M /day
4. Drinking water quantity: 10.32 cu M/day
5. Waste Water Management: Water is connected to sewer line of Nagar Municipal Corporation

b. Water Treatment:

1. Drinking Water treatment system: Total 9 Water purifiers in entire campus. Capacity of purifiers 1 filters of 20, 5 filters of 50, 1 filter of 100 and 1 filter of 1000

Figure 3: Drinking water filter system at every floor with cooler

c. Water Harvesting

- Number of borewells - 3
- Rooftop rainwater harvesting is implemented rooftop area 3202 sq meter
- Annual rainfall in Ahmednagar is 531 mm.
- Percolation Pit Size – 8800 cu ft = 246.4 CuM
- Water Harvesting Potential is around **1440 cu M / Year**
- Technology used is ground water recharge with percolation pit.

Figure 4: Rainwater harvesting system

II. Sanitation

a. Toilet infrastructure

Table 2: Sanitation Infrastructure

Toilet units	Urinals	Toilet pans	Wash basins
Gents		76	15
Ladies	-	59	5
Staff Male		18	1
Staff Female		10	1

Waste water management

i. Waste water generation:

Waste water generation is around 23.5 cum/day i.e. 4699.5 Cum/Year

ii. Treatment and disposal / reuse:

Waste water generated is discharged in the sewer line of Nagar Municipal Corporation.

III. Solid Waste Management

a. Waste generation:

- Total Waste generation: Considering the institution campus and Hostel and canteen waste generation per person per day is considered as 450 g/day/P. So total waste generation is projected as 1500kg/day = 1.5 t/day
- Dry Waste generation: 850kg/day

b. Segregated bins at the campus:

Figure 5: Two bins for waste segregation

c. Composting of wet waste:

No composting system in the campus

d. Disposal of dry and other waste:

No dry waste management. Waste is given to Ahmednagar Corporation

i. Collection and disposal of sanitary napkins:

- Sanitary napkin Vending machine and no incinerator in each toilet in each ladies' toilet block is fitted.

Figure 6Vending Machine

IV. Clean Air

a. Plantation in the premises

Table 3: Existing plants in the campus

Sr No	Trees	Number
A	Big Trees	1120
B	Shrubs	987
B	Middle size plants	2465
	Total	4572

Area of plantation covered: 1,71,182 Sq meter

Figure 7: Plantation in the campus

- CO_2 is one of the most important greenhouse gases. Trees extract CO_2 from the air and convert it into oxygen and plant material through photosynthesis.
- Annual CO_2 offsetting rate varies from 21.77 kg CO_2/tree to 31.5 kg CO_2/tree. To compensate 1 tonne of CO_2, 31 to 46 trees are needed
- On this basis Plantation of 4572 trees consumes 100 MT of CO_2.

b. Ambient air quality:

- The average passenger vehicle emits about 404 grams of CO_2 per mile i.e 269gm CO_2/km
- No Ambient Air monitoring done by the Institution.

Conclusion:

Recommended to do Ambient air monitoring

V. Energy

a. Consumption:

- Yearly average energy consumption 50 to 60 units / month

b. Conservation measures

i. Bulb replacement

- Old bulb– 585 - 34540 Kwh power consumption
- Replacement to LED – 623 – 14300 kwh power consumption
- New installation of LED – 257 nos - 4901 Kwh power consumption.

Conclusion is 15699 Kwh power saving 6279.6 kg CO2 conservation.

- 1,000 kWh of electricity: 400 kg of CO2
- 1,000 kWh of natural gas: 181 kg of CO2
- 1L of fuel oil: 2.66 kg of CO2

ii. Solar system

Solar system is setup at Hostel building for water hot water at 60^0C with following details:

- Power requirement - 23251.5 Units / per month
- Units generated by Solar system - 4780.06 units / Month
- Power given to greed – 73.72 units / Month i.e 884 Units / Year
  Conclusion
- 20.55% of energy requirement is subsidized by Solar system
- 353.6 kg CO2 is conserved annually.

Figure 8: Solar system Photo

D. IEC with Students and Teachers

Sr. No	Date of Activity	Name of Activity	No of Participants
1	25th June 2019	Tree plantation at Kapurwadi	16
2	21-Sep-19	Flood Prone Rescue Operation Camp University	3
3	24 July 202	Tree plantation Pakhwada	67
4	12th Dec 2020	Cleaning awareness program	1000
			1086

E. Conclusion and Way Forward:

I. Water

Conclusion:

- Total water consumption– 36.43 cu M/day so **7285.6 Cum/year**
- Water Conservation with ground water recharge - **1440 cu M / Year**

Way Forward

- Rainwater harvesting of other building's roof tops also need to be done to ensure more recharging of rainwater.
- More IEC need to conduct for water conservation measures
- Water saving fixtures need to place at wash basins and to tabs.

II. Waste

Conclusion:

- Total Solid Waste generation– 1500kg/day = 1.5 t/day
- Total Wet waste generation – 650 kg/day.
- Need of Wet Waste Composting System
- Recyclable waste needs to collect separately for recycling and non-recyclable waste disposal need to clarify.

Way Forward

- No wet waste composting system at college place. It is recommended onsite composting and use of composting in the premises.
- Rainwater harvesting of entire roof top should be done in future.
- IEC need to conduct for segregation of waste and overall waste management for students and staff of college
- At every disposal point segregated bins should be placed.

III. Energy Conservation

Conclusion:

- Energy conservation initiatives of Solar system is good.
- Conservation measures can strengthen.

Way Forward

- LED bulb and motion sensor can initiate.
- IEC need to conduct for energy conservation.
-

IV. Air:

Conclusion:

- Plantation is done at optimal places available in the campus helps in carbon reduction.
- No ambient air monitoring observed.

Way Forward

- Ambient air monitoring need to be done twice a year pre and post monsoon.
- IEC need to be strengthen for students and teachers.
- Carbon foot print need to establish
- Climate change approach need to focus
- Efforts need to strengthen on Biodiversity activities.

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