



BHARATIYA JAIN SANGHATANA'S ARTS, SCIENCE AND COMMERCE COLLEGE, WAGHOLI, PUNE

BHARTIYA JAIN SANGHATANA'S "WAGHOLI" EDUCATIONAL REHABILITATION CENTER" (WERC)

GREEN AUDIT REPORT 2022-23



Preface -

The 'Green Audit-2019' initiative was introduced by Hon. Shri Shantilalji Gulabchandji Muttha, the Founder President of Bharatiya Jain Sanghatana, Pune. The idea emerged during discussions on tree plantation and environmentally sustainable campus development.

The concept of the green audit extends beyond merely enhancing the aesthetics of the college campus; it encompasses corporate responsibility and a commitment to maintaining an eco-friendly environment while providing quality education. Our efforts in this direction include landscaping, plantation, solid waste management, recycling of wastewater, energy conservation, water conservation, rainwater harvesting, and minimizing paper usage.

Our campus is a testament to this vision—clean, fresh, and designed to instill environmental values among students through various activities such as the 'Nature Club,' 'NSS,' 'Cycle Rally,' 'No Vehicle Day Celebration,' and Environmental awareness competitions like quizzes, 'E-Waste Collection', 'Best from waste using plant material', 'Healthy Sapling Competition'. Additionally, Career oriented courses on 'Gardening and Nursery management', 'Mushroom cultivation', and the 'Production of Vermicompost' from solid waste contribute to this eco-conscious spirit.

The maintenance of greenery on the campus is a collaborative effort involving students participating in the 'Karmaveer Bhaurao Earn and Learn Scheme', Nature Club, Beautification Committee and the Department of Botany. The commitment to sustainability not only transforms the campus aesthetically but also ensures a positive impact on the overall well-being of the college community by creating refreshing and healthier environment.

“GROW GREEN LIVE GREEN”

Editor

(Dr. Madhuri Pagariya)

Assistant Professor, Department of Botany, BJSASC COLLEGE

Acknowledgement-

We would like to extend our heartfelt gratitude to Hon. Shri Shantilalji Muttha, the Founder President of the Bharatiya Jain Sanghatana, Hon. Shri Vilasji Rathod, President of the Executive Council of Bharatiya Jain Sanghatana, and Hon. Shri Arunji Nahar, Chairman of the College Development Committee, along with all esteemed members of the CDC committee. Their invaluable guidance, continuous encouragement, and generous investment of time, coupled with constructive criticism and suggestions, played a pivotal role in the creation of the comprehensive 'Green Audit Report-2019.'

Special thanks are due to our Hon. Principal, Dr. S.D. Gaikwad, Mr. H.B. Patil, the External Auditor, Dr. Madhuri Deshmukh IQAC Coordinator of the college, and Hon. Shree Project Manager at WERC Wagholi, Pune. Their inspiration and firm support were instrumental throughout the entire undertaking. We express our gratitude to all authorities for their assistance on various occasions.

At this juncture, we would like to sincerely thank our colleagues, Dr. Desarda Kishor S., Dr. More J.C., Asst. Prof. Mr. Gaikwad D.D. and Miss. Phulari S.S. for their continuous support and thoughtful suggestions without reservation during the investigative process.

Our appreciation extends to the entire teaching and non-teaching staff, as well as the students Mr. Deepak Yadav and Mr. Auysman Rathod F.Y.B.Sc whose manifold contributions were invaluable to the success of this endeavor.

Dr. Madhuri C. Pagariya

Coordinator,

Green Audit Report-2022-23

Principal Message-

I extend my sincere wishes for the success of the publication of the 'Green Audit 2022-23.'

WERC stands out as a distinctive spiritual educational campus, offering quality education while embracing environmental awareness and cultural development. Rooted in the fundamental principles of ancient Indian philosophy, our institution places a strong emphasis on fostering a deep environmental awareness.

The commendable efforts undertaken by our institution and the senior college to protect the environment and conserve biodiversity are truly exceptional. Our commitment to maintaining an eco-friendly environment is evident through various activities, including landscaping, plantation drives, rainwater harvesting, solid waste management, sewage treatment plants, energy conservation, E-waste management, and the implementation of paperless technology.

The ultimate goal of our institution is to mold the youth into socially responsible individuals, equipped with a profound understanding of their role in society.

I offer my sincere wishes for the success of the Green Audit Report, marking the initiation of a new phase in environmental conservation right from the doorsteps of the people. The Green Audit serves as a reflection of the assessment and achievement of our college's vision and mission.

Dr. Sanjay D. Gaikwad

BJS

Bharatiya Jain Sanghatana

CERTIFICATE

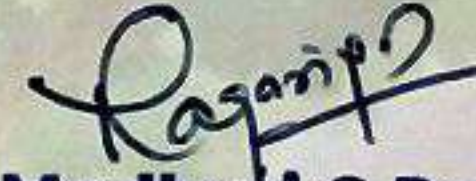
This to certify that Bharatiya Jain Sanghatana's Arts, Science and Commerce College, Wagholi, Pune has conducted 'Green Audit 2022-23' to assess the green initiative planning, effort, activities implemented in the college campus like plantation, Waste management, Rain water harvesting, Conservation of energy, Paperless technology and various Environmental Awareness activities. This green audit is also aimed to assess impact of green initiatives for maintainance of the campus eco-friendly.

Place: Wagholi

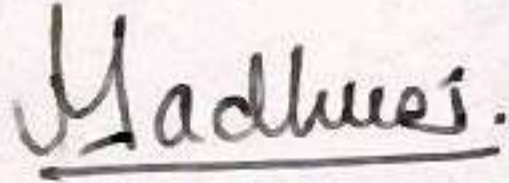
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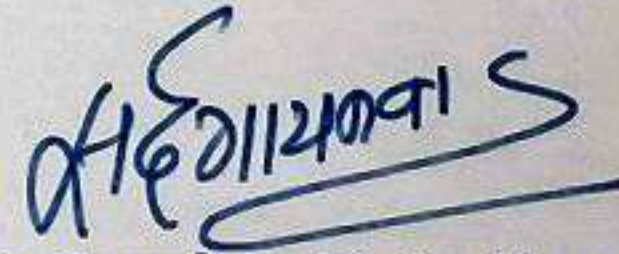
Dr. Devidas N. Patil
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HISTORY-

About the WERC

Hon. Shantilalji Gulabchandji Muttha, the Founder President of Bharatiya Jain Sanghatana, Pune, serves as a remarkable role model across three vital domains: Social Service, Disaster Management, and Permanent Rehabilitation through Quality Education.

In 1993, amidst the devastating earthquake that struck Latur district, Hon. Shantilal Muttha initiated a hostel-cum-school at Wagholi Educational and Rehabilitation Center (WERC), Pune. This visionary project aimed at rebuilding the lives of approximately 1,200 orphaned children who had lost everything in the quake, providing them with quality education from standard 5 through graduation.

The Wagholi Education and Rehabilitation Center (WERC), a testament to swift action and collaboration, was constructed on a 10-acre plot with assistance from the World Bank and the Government of Maharashtra. This facility not only accommodated 1,200 children from Latur but also extended its educational rehabilitation services to children affected by the Jabalpur earthquake and those suffering from malnutrition in the Melghat region of Maharashtra. Additionally, it welcomed 500 students from Jammu & Kashmir affected by an earthquake, ensuring their uninterrupted education.

In 1996, WERC became a haven for nearly 400 malnourished children from the tribal area of Melghat in Vidarbha. The belief was that educating these children could bring about a positive transformation in the region.

Following the Jabalpur earthquake in 1996, WERC continued its mission by providing shelter and education to around 50 affected children. Gujarat earthquake – 2001, Akola (Maharashtra) floods – 2002, Andaman & Nicobar tsunami – 2005, Jammu & Kashmir earthquake – 2005, Bihar floods – 2008, and Maharashtra drought – 2013 & 2016. This ultra-modern rehabilitation center remains a sanctuary for orphans to this day, and its impact was acknowledged by Hon'ble President Dr. A. P. J. Abdul Kalam, who visited WERC, Pune, and generously donated from his personal account.

WERC has been hosting tribal students from Melghat (Amravati) and Kosbad (Thane) of Maharashtra since 1996. From November 2015, BJS took responsibility of rehabilitating children from suicide affected farmers' families of Maharashtra. In 2016-17 academic year, 287 tribal boys and 653 boys and girls of farmers' as well as more when 100 children's whose families been affected by pandemic Covid -19 are hosted at WERC for their education where all facility for their co-curricular development, sports and especially physical and mental health are provided with utmost care.

Similarly, infield of education the outstanding success of BJS-EDUQIP prompted the Education Department of the Goa Government to replicate the program in approximately 1,700 state-run schools in Goa. Moreover, the same initiative is being implemented in all 550 Navodaya Vidyalayas across India. Hon. Shantilalji Gulabchandji Muttha's multifaceted contributions stand as a beacon of inspiration and positive change in the realms of education, social service, and disaster management.

LOCATION (WERC)

WERC is located on Pune-Ahamadnagar National Highway (Maharashtra), East of the Pune City at Wagholi as sub urban area of Pune City spreaded over 10 acres.

Country	India
State	Maharashtra
District	Pune
Taluka	Haveli
Village	Wagholi
Government Type	Grampanchayat
Sarpanch	VasundharataiShivdasUbale
Area ²	
Metropolis	10 acers
Population	7,169
Demonym	BJS
Area Code (s)	+91-20
Official language	Marathi

SATELLITE IMAGE OF BJS CAMPUS



A) GEOGRAPHY :

Pune is located 560 m (1,840 ft) above sea level on the western margin of the Deccan plateau. It is situated on the leeward side of the Sahyadri mountain range, which forms a barrier from the Arabian sea. It is a hilly city, with its tallest hill, Vetar Hill, rising to 800 m (2,600 ft) above sea level. Just outside the city, the Sinhagad fort is located at an altitude of 1300 m. It lies between 18° 32"North latitude and 73° 51"East longitude.

Central Pune is located at the confluence of the Mula and Mutha rivers. The Pavana and Indrayani rivers, tributaries of the Bhima river, traverse the northwestern outskirts of metropolitan Pune.

B) LATITUDE AND LONGITUDE: 18° 34' North , 73° 58' East

C) SOIL TYPE: Lateritic, hard rock.

D) CLIMATE: Pune features a hot semi-arid climate, bordering on tropical wet and dry (Aw), with average temperatures ranging between 20 to 28 °C (68 to 82 °F). The city experiences three distinct seasons: summer, monsoon, and winter.

Summer spans from March to May, characterized by maximum temperatures ranging from 30 to 38 °C (86 to 100 °F). April is the warmest month, and although summer extends into May, heavy thundershowers are common during this period, maintaining high humidity levels. Despite the daytime heat, Pune's elevated altitude ensures cool nights even in the warmest months. The historical peak temperature recorded was 42.3 °C (108.1 °F) on April 30, 1897.

Monsoon prevails from June to October, bringing moderate rainfall and temperatures ranging between 22 to 28 °C (72 to 82 °F). The majority of the annual 722 mm (28.43 in) rainfall occurs between June and September, with July being the wettest month. Hailstorms are frequent during this season.

Winter sets in from November, with November often referred to as the "Rosy Cold" (literal translation) in Marathi (गुलाबीथंडी). Daytime temperatures hover around 28 °C (82 °F), while nighttime temperatures drop below 10 °C (50 °F) throughout December and January, often reaching 5 to 6 °C (41 to 43 °F). The record low temperature recorded was 1.7 °C (35 °F) on January 17, 1935.

METEOROLOGY/ CLIMATE-

Climate Data for Pune													
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Record high °C (°F)	35.3 (95.5)	38.9 (102)	42.8 (109)	43.3 (109.9)	43.3 (109.9)	41.7 (107.1)	36.0 (96.8)	35.0 (95)	36.1 (97)	37.8 (100)	36.1 (97)	35.0 (95)	43.3 (109.9)
Average high °C (°F)	30.3 (86.5)	32.8 (91)	36.0 (96.8)	38.1 (100.6)	37.2 (99)	32.1 (89.8)	28.3 (82.9)	27.5 (81.5)	29.3 (84.7)	31.8 (89.2)	30.5 (86.9)	29.6 (85.3)	32.0 (89.6)
Daily mean °C (°F)	20.5 (68.9)	22.0 (71.6)	25.6 (78.1)	28.8 (83.8)	29.7 (85.5)	27.4 (81.3)	25.3 (77.5)	24.5 (76.1)	25.1 (77.2)	25.0 (77)	22.3 (72.1)	20.2 (68.4)	24.7 (76.46)
Average low °C (°F)	11.4 (52.5)	12.7 (54.9)	16.5 (61.7)	20.7 (69.3)	22.5 (72.5)	22.9 (73.2)	22.0 (71.6)	21.4 (70.5)	20.7 (69.3)	18.8 (65.8)	14.7 (58.5)	12.0 (53.6)	18.0 (64.4)
Record low °C (°F)	1.7 (35.1)	3.9 (39)	7.2 (45)	10.6 (51.1)	13.8 (56.8)	17.0 (62.6)	18.9 (66)	17.2 (63)	13.2 (55.8)	9.4 (48.9)	4.6 (40.3)	3.3 (37.9)	1.7 (35.1)
Precipitation mm (inches)	0 (0)	0.5 (0.02)	5.3 (0.209)	16.6 (0.654)	40.6 (1.598)	116.1 (4.571)	187.2 (7.37)	122.3 (4.815)	120.1 (4.728)	77.9 (3.067)	30.2 (1.189)	4.8 (0.189)	721.7 (28.413)
Avg. precipitation on days	0.0	0.1	0.6	1.1	2.8	7.5	12.8	10.6	7.4	4.6	2.0	0.4	49.9
% humidity	56	46	36	36	48	70	79	82	78	64	58	58	59.3
Mean monthly sunshine hours	291.4	282.8	300.7	303.0	316.2	186.0	120.9	111.6	177.0	248.0	270.0	288.3	2,895.9
<i>Source #1: Temperature and Precipitation: IMD (1951-1980)^{[36][37]}</i>													
<i>Source #2: Sun hours and Humidity: NOAA (1971-1990)^[38]</i>													

INTRODUCTION-

EXECUTIVE SUMMARY-

The Wagholi Educational and Rehabilitation Center (WERC) of Bharatiya Jain Sanghatana in Pune, established in 1997, presides over a sprawling 10-acre campus. Alongside the senior college, the campus features an administrative building, hostel, canteen, secondary and higher secondary school, staff quarters, and a ladies' hostel. This comprehensive facility serves a population of about 7,169 individuals, providing essential amenities such as water, canteen services, toilets, and electricity.

Initially barren, the land underwent transformation with the construction of various buildings. Subsequently, efforts were dedicated to cultivating greenery around these structures. The vision was to create an eco-friendly environment within the campus, prompting a conscious awareness of the green audit. To this end, a series of initiatives, including landscaping, plantation drives, processing and reuse of solid waste from plant debris and the canteen, recycling of wastewater, rainwater harvesting, energy conservation, and E-waste management, were undertaken. These activities collectively contribute to maintaining a clean, fresh, and enhanced educational environment.

The concept of green audit is rooted in corporate responsibility, involving the assessment of the environmental impact of an organization, process, project, or product. It scrutinizes the measures taken by a company to mitigate the environmental impact of its business activities. The Wagholi Educational and Rehabilitation Center conducts regular Green Audits to ensure the eco-friendliness of the college campus and its facilities, aligning with the broader goal of encouraging sustainability and environmental consciousness.

OBJECTIVES OF THE GREEN AUDIT-

The primary aim of the Green Audit is to advance Environment Management and Conservation within the College Campus. The audit is designed to systematically identify, quantify, describe, and prioritize the framework of environment sustainability, ensuring alignment with relevant regulations, policies, and standards.

Key objectives of conducting the Green Audit include:

- Introducing and creating awareness among students regarding environmental concerns and sustainability.
- Safeguarding the environment and mitigating threats to human health by thoroughly analyzing the patterns and extent of resource utilization on the campus.
- Establishing a baseline data that serves as a foundation for assessing future sustainability. This proactive approach aims to prevent disruptions in the environment that may become increasingly challenging to rectify, incurring high costs.
- Generating a comprehensive status report on environmental compliance, outlining the extent to which the college adheres to established environmental standards and regulations.

Methodology-

The campus's green audit is compiled using diverse methodologies, employing various tools such as questionnaires, physical inspections, document reviews, interviews with key personnel, and data analysis.

Through keen observation and thoughtful recommendations, the study encompasses the following areas, summarizing the current state of environmentally sustainable management on the campus:

- Landscape and plantation
- Solid waste management
- Sewage waste management
- E-waste management
- Energy conservation
- Rainwater harvesting
- Environmental activities

LANDSCAPING AND PLANTATION-

Landscaping is the artistic transformation of a specific piece of land into a green and aesthetically pleasing space, commonly referred to as 'beautification.'

In the past, our college campus was nothing more than bare land. However, since the establishment of the Wagholi Education Rehabilitation Center in 1997, significant landscaping efforts have been undertaken. The 10-acre land now hosts various structures, including a hostel, canteen, school, senior college, toilet building, staff quarters (A, B, C Type), and a ladies' hostel. The surrounding areas of these buildings were initially rocky and barren due to water scarcity, posing a significant challenge to turning the campus green. The absence of vegetation was a concern, as it is essential for the campus to thrive.

After 18 years of persistent efforts, our project has successfully evolved into an eco-friendly campus. The entire campus is now designated for specific types of plantations, boasting 849 plants representing 90 different species. Students actively involved in Earn & Learn, N.S.S., Nature Club, the Department of Botany, and non-teaching staff collectively contribute to the care and maintenance of the campus, ensuring that it remains green and pristine.

AIM AND OBJECTIVES OF LANDSCAPING:

Aim:

1. To foster an eco-friendly campus.
2. To create a healthy environment conducive to learning.
3. To beautify the land.

Objectives:

1. Plants serve as crucial components, creating a natural habitat for birds and animals.
2. Plants contribute to natural oxygen production and maintain a clean and cool surrounding environment.

3. Plants act as a shield, protecting against dust collection on foliage creating dust free environment.
4. Enhance the aesthetic view of the campus.

Plantation:-

Aim:

1. To create a healthy environment.
2. To develop a natural habitat within the campus.

Objectives:

1. Increase the oxygen level of the campus.
2. Maintain a cool surrounding environment.
3. Provide shade through plant growth.
4. Establish a natural habitat for birds, animals, and microorganisms.

Activity/Observation:

Plant saplings are strategically planted based on location, considering soil texture, and various plant varieties are planted to enhance the aesthetic appeal of different areas.

The college boasts 94 species of labelled plants, their growth continually monitored. The entire campus has been transformed into beautiful garden patches featuring a variety of herbs (36), shrubs (23), trees (26), and climbers (9). Efforts are ongoing to increase the number of plants that can thrive under adverse soil conditions and water scarcity.

Recommendations:

1. Establish a College Environmental Committee to enact, enforce, and review the Environmental Policy, providing guidance on implementation to staff and students.
2. Conduct an annual audit, taking action based on audit reports, recommendations, and findings.
3. Increase the use of drip irrigation systems to ensure proper watering for plants

Table -I : Locational Survey of WERC Campus plants

Sr. no	Location	No of Plants
1	College Porch-1	70
2	College Porch-2	68
3	College front side	285
4	College building -Left	42
5	College building -Right	50
6	Botanical Garden(Back side)	250
7	Staff Quarter	110
8	School Porch	96
9	School Front	175
10	Ganesh temple- front	25
11	Hostel campus	320
12	WERC gate I- Entry Road	50
13	Mess - Front Entry	05
14	Play ground -Front	60
15	Indoor Hall Front Ground	55

16	Road avenue	70
17	Waste water treatment plant	34
18	Administration Building	50
Total no. of plants		1820

Table II : Habit Survey Of WERC Campus Plants

Sr.no	Habit	Number
1	Trees	26
2	Shrubs	23
3	Herbs	36
4	Climbers	9

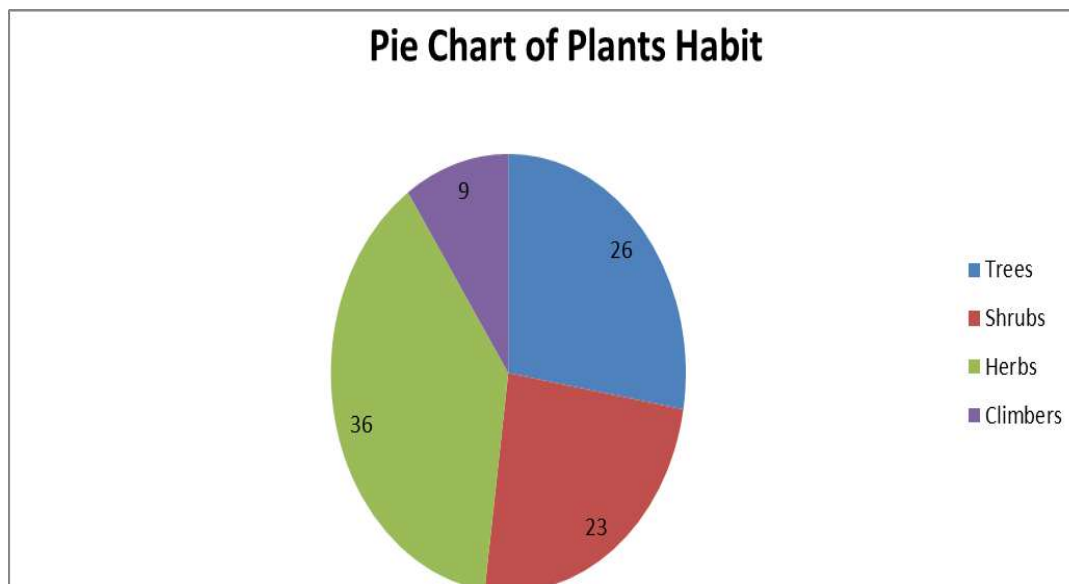


Table –III : NUMBER OF PLANTS PRESENT IN CAMPUS

SR NO.	BOTANICAL NAME	COMMON NAME	FAMILY	NO. OF PLANTS IN CAMPUS
1	<i>Adenium obesum</i> (Forssk.)Roem.&Schult.	Adenium	Apocynaceae	6
2	<i>Albizia lebbeck</i>	Rain Tree	Miomsaceae	1
3	<i>Allamanda cathartica</i> L	Golden Trumpet	Apocynaceae	10
4	<i>Allium cepa</i> L	Onion	Liliaceae	10
5	<i>Allium sativus</i> L.	Garlic	Liliaceae	10
6	<i>Aloe vera</i> L.	Korphad	Liliaceae	5
7	<i>Alstonia scholaris</i> (L.) R. Br.	Satptarni	Apocynaceae	2
8	<i>Annona reticulate</i> L.	Raamphal	Annonaceae	5
9	<i>Annona squamosa</i> L.	Shitaphal	Annonaceae	10
10	<i>Araucaria columnaris</i> G.Forst.) Hook.	X- Mass Tree	Araucariaceae	1
11	<u><i>Aristolochia ringens</i>vahl.</u>	BadakVel	Aristolochiaceae	10
12	<i>Asparagus racemosus</i> L.	Shatavari	Liliaceae	50
13	<i>Asplenium nidus</i> L.	Bird Nest Fern	Aspleniaceae	2
14	<i>Azadirachata indica</i> L	Kaduneem	Meliaceae	15
15	<i>Bambusa dendrocalamus</i>	Bamboo	Poaceae	50
16	<i>Bauhonia .purpuria</i>	Bauhonia Apta	Fabaaceae	2
17	<i>Bougainvillea spectabilis</i> Willd.	KagdiPhul	Nyctaginaceae	5
18	<i>Canna indica</i> L	Kardal	Cannaceae	5
19 20	<i>Capsicum annum</i> L.	Chili	Solanaceae	5

21	<i>Carica papaya L.</i>	Papaya	Caricaceae	1
22	<i>Caryota urens L.</i>	Fish Tail Palm	Aracaceae	10
23	<i>Cassia Fistula Linn</i>	Golden Shower	Fabeaceae	2
24	<i>Casurina equisetiflia L.</i>	Suru	Casurinaceae	2
25	<i>Cesalpinia pulcherrima</i>	Shankasur	Leguminaceae	5
26	<i>Cestrum nocturnum L</i>	Raatrani	Solanaceae	1
27	<i>Colocasia esculenta(L.) Schott</i>	Colocasia	Arecaceae	17
28	<i>Combretum indicum (L.)</i>	Madhumalti	Combretaceae	11
29	<i>Curcuma longa</i>	Turmeric	Zingiberaceae	5
30	<i>Cycas revolute Thunb.</i>	Cycas	Cycadaceae	5
31	<i>Cynodon dactylon (L.)</i>	Durva	Poaceae	437
32	<i>Cyperus Sp.</i>	Cyperus	Cyperraceae	25
34	<i>Delonix regia Rafin</i>	Gulmohor	Caesalpinaceae	21
35	<i>Dieffenbachia amoenaBull</i>	Dumb Cane	Araceae	40
36	<i>Dracaena brauniiEngl.</i>	Lucky Bamboo	Asparagaceae	2
37	<i>Dracaena marginataLam.</i>	Dracaena	Asparagaceae	50
38	<i>Dypsis lutescens (H.Wendl.) Beentje&J.Dransf</i>	Butterfly Palm	Arecaceae	95
39	<i>Epipremnum aureum(Linden & André) G.S.Bunting</i>	Money Plant	Araceae	20
40	<i>Eucalyptus globulusLabill.</i>	Neelgiri	Myrtaceae	15
41	<i>Ficus bengalensis L.</i>	Banyan Tree	Moraceae	1
42	<i>Ficus elastic Roxb.exHornem.</i>	Rubber Tree	Moraceae	5
43	<i>Ficus racemosa Roxb.</i>	Umber/Audumber	Moraceae	5

44	<i>Gaillardia pulchella Foug.</i>	Galanda	Asteraceae	30
45	<i>Hamelia patens Jacq.</i>	Hamelia/ Firebrush	Rubiaceae	5
46	<i>Hibiscus rosa-sinensis L.</i>	Jaswand	Malvaceae	5
47	<i>Ipomoea purpurea(L.) Roth</i>	Morning glory	<u>Convolvulaceae</u>	5
48	<i>Ixora coccania</i>	Lokhandi	Rubiaceae	10
49	<i>Jacaranda mimosaefolia D. Don</i>	Neelgulmohar	Bignonaceae	2
50	<i>Jasminum sambac(L.) Aiton</i>	Mogra	Oleaceae	20
51	<i>Jatropha curcus L</i>	Moglierand	Euphorbiaceae	5
52	<i>Justicia adhatoda L.</i>	Adusa	Acanthaceae	1
53	<i>Klanchoe pinnata(Lam.) Pers</i>	Panphuti	Crassulaceae	1
54	<i>Lantana camara L.</i>	Tantani/ HaladiKunku	Verbenaceae	5
55	<i>Livistona rotundifloia</i>	Table-Palm	Aracaceae	2
56	<i>Mallingtonia hortensis</i>	Akashneel	Bignoniaceae	9
57	<i>Michelia champaca</i>	Chafa	Magnoliaceae	5
58	<i>Mimosa pudica L.</i>	Touch Me Not/Lajalu	Mimosaceae	10
59	<i>Moringa oleifera Lam</i>	Shevga	Fabaceae	3
60	<i>Morus albaL.</i>	Tuti	Moraceae	1
61	<i>Murraya koenigii(L.) Spreng</i>	Curry Leaf	Rutaceae	3
62	<i>Nephrolepis exaltata(L.) Schott</i>	Fern/ Neche	Nephrolepaeae	

				2
63	<i>Nerium indicum</i> MILL.	Kanher	Apocynaceae	30
64	<i>Nyctanthes arbor-tristis</i> L.	Parijatak	Oleaceae	3
65	<i>Ocimum tenuiflorum</i> L	Ram Tulsi	Lamiaceae	5
66	<i>Ocimum sanctum</i> L	Tulsi	Lamiaceae	5
67	<i>Pandanous odorifer</i>	Kewda	Pandanaceae	10
68	<i>Passiflora indulis</i>	Krushnkamal	Passifloraceae	20
69	<i>Phyllanthus emblica</i> L	Avala	Euphobiaceae	1
70	<i>Pithecolobium dulce</i>	Vilayti Chinch	Fabaceae	3
71	<i>Plectranthus scutellarioides</i> (L.) R.Br	Coleus	Lamiaceae	2
72	<i>Polyalthia longifolia</i> Benth.&Hk.	FasleAshoka	Annonaceae	45
73	<i>Polyanthes tuberosa</i> L.	Nishigandh	Amaryllidaceae	5
74	<i>Pongamia pinnata</i> (L.) Pierre	Karanj	Fabeaceae	15
75	<i>Portulaca grandiflora</i> Hook.	Chinigulab	Amaranthaceae	20
76	<i>Portulaca oleracea</i> L.	Perslane	<u>Portulacaceae</u>	70
77	<i>Psidium guajava</i> Mill.	Peru	Mrytaceae	1
78	<i>Pyrostegia venusta</i> (Ker Gawl.) Miers	SankrantVel	<u>Bignoniaceae</u>	10
79	<i>Ricinus communis</i> L.	Erand	Euphorbiaceae	3
80	<i>Rosa indica</i> L.	Rose/ Gulab	Rosaceae	75
81	<i>Saraca ashoka</i> L	Ashoka	Fabaceae	105
82	<i>Saussurea obvallata</i> (DC.) Edgew	Bramhkamal	Asteraceae	5
83	<i>Solanum melongena</i> L	Bringal	Solanaceae	10

84	<i>Syngonium podophyllum Schott</i>	Arrow Head	Araceae	5
85	<i>Syzygium cumini (L.)</i>	Jamun	Euphorbiaceae	5
86	<i>Tabernaemontana divaricata (L.) R.Br. ex Roem. &Schult.</i>	Tagar	Apocynaceae	2
87	<i>Tectona grandis Linn.</i>	Saag	Lamiaceae	6
88	<i>Thevetia nerifolia Juss.ex A.DC.</i>	Bititi	Apocyanaceae	75
89	<i>Thuja accidentalis</i>	Morpankhi	Cupressaceae	5
90	<i>Tinospora cordifolia (Thunb.) Miers</i>	Gulvel	Menispermaceae	1
91	<i>Trachyspermum ammi(L.) Sprague</i>	Ova/ Ajwain	Apiaceae	4
92	<i>Tradescantia spathaceaSw.</i>	Oyster Plant	Commenlinaceae	50
93	<i>Vincaroseus L.</i>	Sadphuli	Apocynaceae	10
94	<i>Vitex nigundo Linnaeus ap. Bojer</i>	Nirgudi	Lamiaceae	1
95	<i>Ziziphus jujube MILL.</i>	Ber / Bor	Rhamnaceae	3
				1820

Table- IV : List of Some Medicinal Plants in the College campus (WERC)

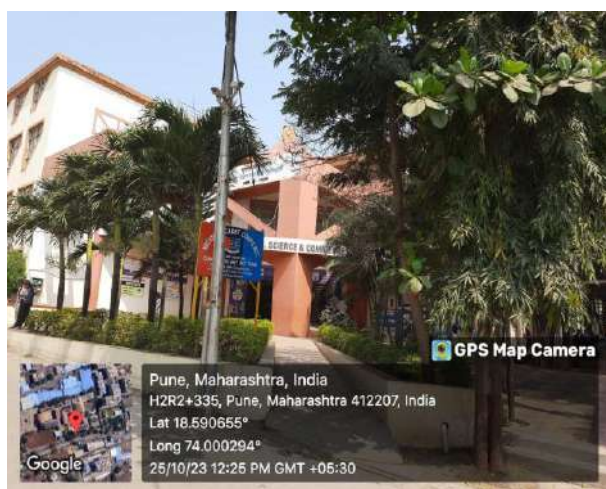
Sr. No	Botanical name	Local name	Part used	Uses
1	<i>Aloe veraL.</i>	‘Korpad’	Leaves	Preparation of commercial cosmetics
2	<i>Azadirachata indica L.</i>	‘Kadu-Neem’	Leaves, karneles seeds	Expectorant cure digestive germs & worms

3	<i>Cassia Fistula</i> Linn.	‘Bahava/ Amaltash’	Fruit	Fruit pulp use to cure stomach ache of the babies.
4	<i>Ocimum sanctum</i> L.	‘Ram tulsi’	Leaves	Use in rheumatic joints
5	<i>Phyllanthus emblica</i> L.	‘Avala’	Fruit	Use in churn
6	<i>Polyalthia longifolia</i> Benth. &Hk.	‘ASHOK’	Branch of plant	Use in milk secretion in mother
7	<i>Tinospora cordifolia</i> (Wild.) Miers. ex.H.&T.	‘Korpad’	Leaves	Use in cosmetics as antiseptic properties.
8	<i>Hibiscus rosa-sinensis</i> L	Jaswand	Flowers	Use for making dyes
9	<i>Bombax ceiba</i>	Malyari	Flowers	Edible flowers
10	<i>Mangifera indica</i>	‘Amba’	Fruits	Edible fruits
11	<i>Pongamia pinnata</i>	‘Karanj’	Seeds	Use in skin diseases
12	<i>Cassia fistula</i>	‘Amaltas’	Leaves	Against skin diseases
13	<i>Mimosa pudica</i>	‘Lajalu’	Leaves	For hydrocele
14	<i>Kalanchoe pinnata</i>	‘Panphuti’	Leaves	making threads
15	<i>Asparagus recemosus</i>	shatavari	Leaves	Increase milk productivity

Table - V : THEME LOCALITIES

Sr. No.	Theme	Location	Plants
1	Oxygen rich	Botanical garden, South side of college and School front side	Tulsi, Pimpal,Neem
2	Beauty	Front of college	Ficus, Croton, cynadon (Lawn grass), Shampion palm, Ixora.
3	Medicinal Plants	Botanical garden	Bahava, Adulsa,Tulsi,Ekhand, Ran owa, Korpad,
4	Climbers	Left side of toilet building	Quisqualis, Gulvel
5	Shade	Botanical garden, college road and college left side	Teak, Melingtonia, Neem, Thewetia, Bakul, Almond

6	Avenue	College road and way to botanical garden, Hostel	Biti, Gulmohar, Sag (Tick) Akash Neem, Rain-tree, Ashoka
7	Palms	Botanical garden, College front	Areca palm, Fish-tail palm
8	Gymnosperms	Botanical garden, College front	Cycas, Thuja, X-mas tree
9	Pteridophytes	Botanical garden	Tree fern, Nephrolepis
10	Aquatic plants	Botanical garden	Eichornia, Salvia, Azolla
11	Bund	Left side of the college, School front side	Areca palm, Tecoma
12	Rose garden	Hostel campus	Different colored roses



SOLID WASTE MANAGEMENT

Aim:

1. Implement scientific solid waste disposal methods.
2. Safeguard human health and the environment.

Objectives:

1. Increase the recycling level of waste.
2. Reduce organic waste in landfills.
3. Control air, water, and soil pollution.
4. Produce green manure and vermicompost.

Activity/Observation:

Solid waste is categorized into dry and wet components. Dry waste includes plastic, glass, paper, metals, wood, and related products, which are sent to recycling agencies to prevent pollution. Wet waste, comprising organic waste from the canteen, fallen leaves, litter, and other sources, is managed through solid organic waste management activities. This includes composting in pits, producing vermicompost from solid organic waste, and educating students and farmers about organic manure production, such as vermicomposting and mushroom cultivation. The resulting biofertilizer is used to enhance the greenery of the college campus, promoting a clean and fresh environment. Canteen waste is processed using a Shredding processing machine to produce organic fertilizer for the campus garden.

Vermicompost Units: The Zoology department has established two vermicompost chambers in the Botanical garden, utilizing a variety of organic waste.

Unit 1-measuring 12ft length, 4ft width, and 2ft depth, is dedicated to vermicomposting.

Unit 2-measuring 12ft length, 4ft width, and 1ft depth, is employed for decomposing organic waste. Both units are covered to protect against rainwater. The vermicomposting utilizes the *Eisenia foetida* species of earthworms due to its high conversion ratio. Earthworms efficiently transform agricultural waste into nutrient-rich vermicompost, enhancing plant growth, soil porosity, microbial activity, water retention, and aeration. Vermicompost also reduces the need for chemical fertilizers and waste in landfills. It contains significantly higher levels of magnesium, nitrogen, and potassium and increase soil fertility.

Recommendations:

Implement measures to reduce the overall waste generated by college staff offices.



WATER/SEWAGE WASTE MANAGEMENT

Aim:

1. Implement scientific sewage disposal.
2. Provide solutions for maintaining health and hygiene.

Objectives:

1. Minimize air and water pollution.
2. Reuse drainage water.
3. Fulfill the water requirements for gardening.
4. Minimize expenses on water for gardening.

Activity/Observation:

The WERC campus accommodates various facilities, including hostels, schools, senior colleges, staff quarters, ladies hostels, and an administrative building, catering to a population of about 7,169 individuals, including students, staff, and stakeholders. The campus requires approximately 41,74,854 liters of fresh water daily. Initially, the lack of a corporation drainage system posed a water disposal challenge. However, with the establishment of two wastewater treatment plants, it became feasible to reuse water for maintaining green spaces on the campus, mitigating air and water pollution.

Approximately 20,00,000 liters of domestic wastewater are collected daily and undergo treatment in the Sewage Water Treatment Plant (STP). After treatment, the water is circulated through pipes in the garden to nurture plants on the campus, serving as natural fans and contributing to a clean and eco-friendly environment.

Recommendations:

1. Minimize water and electricity wastage during water filtration processes, especially in technologies like RO filtration. Regular servicing of equipment should be ensured, and water wastage should not exceed industry averages for similar capacities.
2. Ensure that all cleaning products used by college staff have minimal environmental impact, being biodegradable and non-toxic, even surpassing the Control of Substances Hazardous guidelines.

Sewage Treatment Plant



E-WASTE MANAGEMENT

E-waste represents an upcoming environmental challenge that poses hazards to our surroundings. It is non-degradable waste capable of polluting water, soil, and air. With this awareness, we focus on the harmful materials, particularly metals and insulating materials found in e-waste, including CDs, scraps, mobile devices, computer waste like wiring and metals, and unused pen drives.

ITEMS AND THEIR TOXIC COMPONENTS

SR. NO	ITEM	COMPONENTS
1	REFRIGERATOR	CFC/HC/RUBBER
2	PC AND LAPTOPS	CRT, FLUORESCENT LAMP, COPPER
3	TELEVISION	METAL, CRT, PLASTIC, BRF
4	WASHING MACHINE	RUBBER, ELECTRIC WIRE, METAL AND MOTOR
5	COMPUTER BATTERIES	CADMIUM
6	CAPACITOR AND TRANSFORMER	PBC
7	PRINTED CIRCUIT BOARD	LEAD AND CADMIUM
8	CATHOD RAY TUBES	LEAD OXIDE AND Cd
9	CABLE INSULATION / COATING	PVC
10	SWITCHES AND FLAT SCREEN MONITOR	MERCURY

Activity/Observation:

With the aim of minimizing pollution caused by e-waste, we have implemented scientific disposal methods through two approaches:

1. Collection of E-Waste in E-Waste Box: We have strategically placed e-waste boxes, notably in the computer laboratory. Our students and staff deposit unused electronic devices and components like CDs, PDs, memory cards, SIM

cards, etc. These items are collected, and some are reused internally. The remaining e-waste is handed over to authorized e-waste scrap purchasers for proper reuse and disposal.

This ongoing activity, conducted throughout the year, involves the collection of E-waste in designated boxes. During the E-waste collection campaign undertaken by Department of Botany, BJS ASC College on 16-10-2022 in association Janwani Foundation, Pune Municipal Corporation, Cummins India Foundation, Poornam Eco-vision Foundation, Sagar Mitra, Thum Creative, Adar Poonawalla Clean City Initiative and K.K.Nag foundation collected with a total of 30 kg of E-waste was collected from near by societies of BJS ASC, Wagholi. Some items were reused in the preparation of "best from waste" activities, and others underwent repairs.

Recommendations:

1. Purchase Recycled Resources: Always prioritize the purchase of recycled resources when suitable and available.
2. Encourage Device Reuse: Promote the reuse of devices after proper repair.

E-waste collection Drive



RAIN WATER HARVESTING

Rainwater harvesting is the straightforward collection or storage of water using scientific techniques in areas where rainfall occurs. This method involves the efficient utilization of rainwater for domestic or agricultural purposes. The practice of rainwater harvesting dates back to ancient times and stands as one of the most effective ways to conserve water, serving as a means to awaken society to the vital importance of water conservation. This method is simple and cost-effective.

Many people often lament the scarcity of water during the monsoon season, witnessing a significant amount of water going to waste in gutters. Rainwater harvesting effectively addresses this issue by collecting rainwater in tanks, preventing its flow into drains and avoiding wastage. The process of rainwater harvesting includes both the storage of water and recharging it through technical means.

Aims and objectives:

Aims:

1. Conserve fresh water.
2. Increase the groundwater level

Objectives:

1. Arrest the decline of groundwater and enhance groundwater levels.
2. Conserve surface water runoff during the monsoon.
3. Reduce soil erosion.

Activity/Observations:

Rainwater, being the primary source of fresh water, is crucial for our WERC campus. The rainwater harvesting program is implemented in two ways:

1. **Rainwater Discharge in Trenches and Dry Bore:**

- a. The college campus, spanning 10 acres, includes constructions like schools, colleges, hostels, and canteens.
- b. Trenches are constructed in the campus garden to harvest maximum rainwater.
- c. The remaining water is directed to dry borewells and pits for recharge, contributing to an increase in the groundwater level.

2. **Rainwater Harvesting for Laboratory Use:**

- a. Two locations in the college campus are designated for rainwater harvesting.
- b. Pits are constructed near dry borewells, collecting rainwater during the rainy season and discharging it for percolation to enhance the groundwater level.

3. **Collection for Laboratory Use:**

- a. Rainwater is annually collected from building roofs.
- b. After filtration, it is utilized as distilled water for science laboratories in Chemistry, Physics, Botany, and Zoology.

Recommendations:

1. Expand the number of pits for rainwater harvesting.
2. Implement the construction of underground tanks for storing harvested rainwater.



ENERGY CONSERVATION

Aims and objectives:

Aims:

1. Minimize the use of natural resources.
2. Conserve energy.

Objectives:

1. Save non-conventionally produced electric energy.
2. Utilize conventional sources of energy.
3. Minimize electric expenses.

Activity/Observations:

Energy conservation is a pressing issue for the country, exacerbated by the high demand for electricity and the shortage of non-conventional energy sources. To address this, we have implemented energy conservation programs through three approaches:

1. Use of LED Tubes in College Buildings:
 - Implementing the use of LED tubes throughout the college buildings.
2. Utilization of Solar Water Heater:
 - Incorporating solar water heaters for efficient water heating.
3. Solar Power Plant for Electricity Production:
 - Establishing a solar power plant to generate electricity sustainably.

Use of LED Bulb - Energy Audit Chart

Conclusion:

LED tubes exhibit a 40% energy saving compared to normal tubes, contributing to significant energy conservation.

Recommendations:

1. Advocate for renewable and carbon-neutral electricity options in energy purchasing.
2. Embrace paperless technology.



PAPERLESS TECHNOLOGY

Aim:

1. Use E-media for communication as a green initiative practice.
2. Conservation of Natural Habitat

Objectives:

1. Minimize the use of paper.
2. Conserve natural plant resources.

Activity/Observations:

Paper, derived from plants, creates pressure on forests. To alleviate this, paperless technology such as email, SMS, WhatsApp, various educational apps, software, and internet services are employed for communication within the institute. Sending documents to stakeholders, including students, teachers, parents, principal, and management, is done electronically, reflecting our commitment to green initiatives. The use of a Digital Notice board for various notices to students further exemplifies this approach..

Recommendations:

Minimize paper usage.

