

Green Audit Report

(2022-23)



Panchakshari Shivacharya Trust

CHANNABASWESHWAR PHARMACY COLLEGE (DEGREE)

Basweshwar Chowk, Maharashtra Latur 413512 (Maharashtra)



Green Audit report Submitted by



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Energy Auditor Empanelled Mahaurja, Govt. of Maharashtra

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INDEX:

Sr	Titles/Topics	Page
1	Acknowledgement	3
2	Executive Summary	4
3	Chapter No. 1: Scope of work & Methodology	6
4	Chapter No. 2: Introduction about Institute	8
5	Chapter No. 3: Categories of Land use	10
6	Chapter No. 4: Green Cover - Plantation of Trees	11
7	Chapter No. 5: Use of Green (Renewable) Energy	14
8	Chapter No. 6: Study of Waste Management	15
9	Chapter No. 7: Study of Carbon Footprint	22
10	Chapter No. 8: Best Practices & Activities	23



ACKNOWLEDGEMENT

We express our sincere gratitude to the management of Channabasweshwar Pharmacy College (Degree), Latur for awarding us the assignment of Green Audit of their Latur Campus.

We are thankful to: **Honorable Principal Dr. O. G. Bhusnure Sir given opportunity to conduct audit.**

We are also thankful to various Head of Departments & other Staff members for helping us during the field measurements.



Kedar Khamitkar
Energy Auditor

Certified by Bureau of Energy Efficiency, Ministry of Power, Gov. of India
Empanelled Consultant MAHAURJA (Govt. of Maharashtra Institution)

प्रतिज्ञा

हम सत्यनिष्ठा से प्रतिज्ञा करते हैं कि अपने सभी कार्यों में पेट्रोलियम उत्पादों के संरक्षण हेतु सतत प्रयासरत रहेंगे, ताकि देश की प्रगति के लिए आवश्यक इन सीमित संसाधनों की आपूर्ति अधिक समय तक सम्भव हो सके। आदर्श नागरिक होने के नाते हम लोगों को पेट्रोलियम पदार्थों के व्यर्थ उपयोग से बचने तथा पर्यावरण संरक्षण हेतु स्वच्छ ईंधन का प्रयोग करने के लिए जागरूक करेंगे।

EXECUTIVE SUMMARY:

Objective	Observation	Remarks / Recommendation
Green Cover - Plantation of Trees	Plantation of trees is started in the campus and the green cover is extended every year in the campus. At Present 16% area campus is having the Green cover.	It is recommended to increase the Green Cover Further.
Use of Renewable Energy	Institute has been installed 19 KW Solar Power Plant.	Good initiative for sustainability.
Water Conservation	Recommended to Install Sign Boards. Awareness for Water Conservation.	It is recommended to install taps with reduced water flow
Rain Water harvesting	Rainwater Harvesting has been installed.	Institute has been taken good initiative for water conservation

Avoid Misuse/ wastage of water	RO water providing safe drinking water.	Waste water can used for Gardening.
	Encourage to reduce the water usage	Recommended Water Sprinkler system to save water.
Bio Waste Management	The Bio Waste – Food Waste generated in the campus is proposed to be feed stock for Bio Gas plant	Recommended for Bio gas plant.
Non Bio Waste	Non Bio Waste – Plastic Bottles / Paper Waste Metals waste is being collected in the dust bins placed across the campus.	It is proposed to install plastic bottle crusher, which can be sold as a Feed stock for the Plastic industry.
E Waste	E Waste – All Electronic Junk is generated in the campus in the form of Used Computer key boards/ Mouse/ CPU's/ Damaged Printers etc.	An agreement is in place with local Company to pick up the E waste every six month
Carbon Foot Print	Mostly staff commute in the Mahanagar Palika Buses -	Found Awareness in the Staff
Transportation	Mostly Students commute in the ST Bus from City / rural Areas	Found Awareness in the Students
	Mostly Students & Staff using EV Vehicles	Recommended to charge EV vehicles in day time between 9am to 3pm

Chapter No.1 Scope of Work & Green Audit Methodology

Channabasweshwar Pharmacy College (Degree) , Latur entrusted the work of conducting a detailed Green Audit of campus with the main objectives are as bellows:

Objectives of Green Audit:

1. To examine the current practices, which can impact on environment such as of resource utilization, waste management etc.
2. To identify and analyze significant environmental issues.
3. Setup goal, vision, and mission for Green practices in campus.
4. Establish and implement Environment Management in various departments.
5. Continuous assessment for betterment in performance in green

Need of Green Audit:

Green auditing is the process of identifying and determining whether institutions practices are eco-friendly and sustainable. Green audit regulates all such practices and gives an efficient way of natural resource utilization. In the era of climate change and resource depletion it is necessary to verify the processes and convert it in to green and clean one. Green audit provides an approach for it. It also increases overall consciousness among the people working in institution towards an environment.

Methodology of Green Audit:

Green Audit of Channabasweshwar Pharmacy College (Degree), Latur Campus has been conducted with specific methodology as follows:



Goals of Green Audit:

Conducted a green audit of Channabasweshwar Pharmacy College (Degree), Latur Campus with specific goals as:

1. Identification and documentation of green practices followed by the Institute.
2. Identify strength and weakness in green practices.
3. Analyze and suggest solution for problems identified.
4. Assess facility of different types of waste management.
5. Increase environmental awareness throughout campus
6. Identify and assess environmental risk.
7. Motivates staff for optimized sustainable use of available resources.
8. The long-term goal of the environmental audit program is to collect baseline data of environmental parameters and resolve environmental Issue before they become problem.



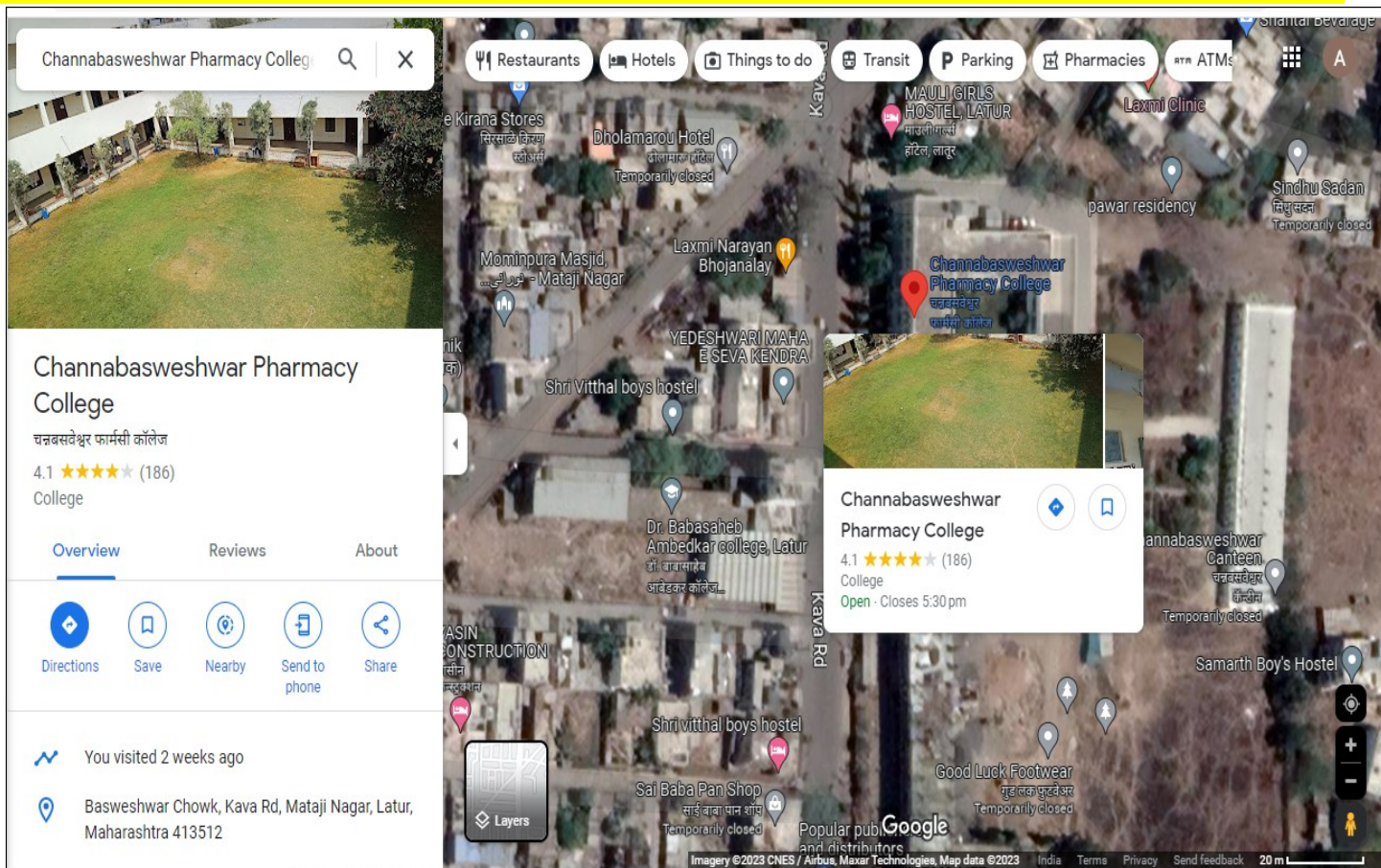
Chapter No.2 **Introduction about the Institute**

Panchakshari Shivacharya Trust, Channabasweshwar Pharmacy College (Degree), Latur was established in the year 2010. “Panchakshari Shivacharya Trust” is a charitable trust registered under Bombay act 1950. It undertakes educational and social activities. This trust has started Channabashweshwar Pharmacy Polytechnic in Latur in 1980. After realizing the prospects and potential of the course in the emerging scenario of global pharmaceutical industry and education, the trust further started Channabasweshwar Pharmacy College (Degree) with Bachelor of Pharmacy in 2010. Thereafter postgraduate course M. Pharmacy (Pharmaceutics and Pharmaceutical Quality Assurance) in 2012. Since 2019 the College has recognized as Approved Ph. D Research Centre. Thereafter the Pharm D course in 2020 and other PG branches like Pharmaceutical Quality Assurance and Pharmacology in 2021. College is having its own well-structured building, well equipped laboratories, and library with number of reference books, international journals with e-library, good computing facility and research laboratory. The College is promoting green initiatives to make positive environment within the campus.

Sr.	Head	Particulars
1.	Name	Channabasweshwar Pharmacy College (Degree)
2.	Address	Basweshwar Chowk, Kava Road, Latur (M.S.)
3.	Degree Courses Offered	B. Pharm. M. Pharm, Pharm D. & PhD

Location: The College is situated at kava road, in most beautiful and spacious campus, 50 meters away from Basweshwar Chowk, 1.0 km from bus stand and 5.0 km from railway station.

ARIAL VIEW OF COLLEGE CAMPUS (SOURCE GOOGLE EARTH)



Address: Kava Road, Latur 413531 (Maharashtra)

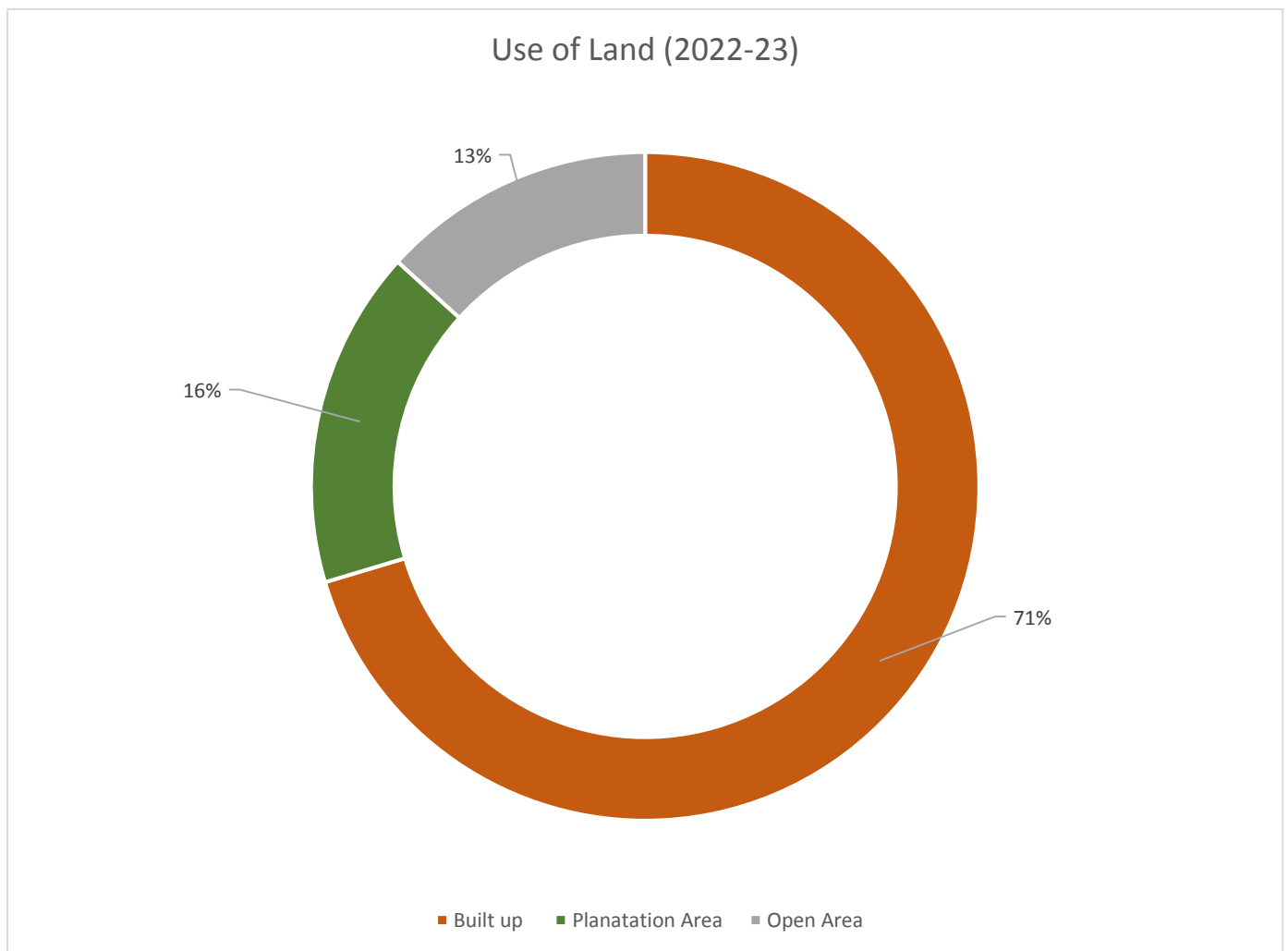


Chapter No.3 **CATEGORIES OF LAND USE**

Plantation of trees is started in the campus and the green cover is extended every year in the campus. At Present **16%** area campus is having the Green cover.

Audit Framework and detailed findings of the Audit:

Built up	6438.76	SQM
Plantation Area	1496.66	SQM
Open Area	1214.18	SQM
Total campus area	9510	SQM



Observations : **Plantation area 16%**



Chapter No. 4 **Green Cover - Plantation of Trees**

Green Landscaping with Trees and Plants – the campus is beautifully landscaped.



List of Plants in the Campus:

Sr	Botanical Name	Family	Common Name	Total
1	Aloe barbadensis miller	Liliaceae	Aloe	01
2	Ocimum sanctum Linn	Lamiaceae	Tulsi	01
3	Asparagus racemosus	Liliaceae	Shatavari	01
4	Tinospora cordifolia	Menispermaceae	Gulvel	01
5	Santalum album	Santalaceae	Chandan	01
6	Prunus amygdalus	Rosaceae	Almond	01
7	Azadirachta indica	Meliaceae	Neem	05
8	Mangifera indica	Anacardiaceae	Mango	03
9	Embllica Officinalis	Euphorbiaceae	Amla	01
10	Momordica charantia	Cucurbitaceae	Karala	01
11	Eugenia jambolana	Myrtaceae	Jambul	01
12	Curcuma longa Linn	Zingiberaceae	Turmeric	01
13	Gymnema sylvestre	Asclepidaceae	Gymnema	01
14	Withania somnifera	Solanaceae	Ashwandha	01
15	Datura metal var	Solanaceae	Datura	08
16	Adhathoda vasica Nees	Acanthaceae	Vasaka	01
17	Catharanthus roseus	Apocyanaceae	Vinca	04
18	Capsicum annum	Solanaceae	Capsicum	01
19	Foeniculum vulgare Mill	Umbelliferae	Fennel	01
20	Coriandrum sativum	Umbelliferae	Coriander	01
21	Eugenia caryophyllus	Myrtaceae	Clove	01
22	Eucalyptus globulus	Myrtaceae	Nilgiri	01
23	Saraca INDICA	Leguminosae	Ashoka	05
24	Aegle marmelos	Rutaceae	Bael	01
25	Tamarindus indica	Leguminosae	Tamarind	02
26	Citrus lemonis	Rutaceae	Lemon	01
27	Allium sativum	Liliaceae	Garlic	01
28	Cocos nucifera	Palmae	Coconut	03
29	Brassica nigra	Cruciferae	Black Mustard	01
30	Solanum tuberosum	Solanaceae	Potato	01

31	Urginea indica	Liliaceae	Squill	01
32	Rosa sericea	Rosaceae	Rose	01
33	Cymbopogon citratus	Graminae	Lemon grass	01
34	Mentha spicata	Labitae	Spearmint	01
35	Hibiscus rosasinensis	Malvaceae	Chinarose	01
36	Annona squamosa	Annonaceae	Custard	01
37	Strobilanthes callosus	Acanthaceae	Kanheri	01
38	Murraya koenigii	Rutaceae	Curry tree	01
39	Plumeria alba linn	Apocynaceae	Plumeria	01
40	Delonix regia	Fabaceae	Gulmohar	08
41	Terminalia catappa	Combretaceae	Badam	06
42	Ficus religiosa	Moraceae	Peepal	01
43	Ficus benghalensis	Moraceae	Wad	01
44	Annona reticulata	Annonaceae	Ramfal	01
45	Plumeria alba	Rauvolfoideae	Chafa	03
46	Nerium oleander	Apocynaceae	Kanheri	04
47	Pithecellobium dulce	Leguminosae	Manila Tamarind	02
48	Sesbania bispinosa	Fabaceae	Shevari	04
49	Calotropis gigantea	Apocynaceae	Ruchik	04
50	Ziziphus mauritiana,	Rhamnaceae	Bori	01
51	Jasminum sambac	Oleaceae	Mogara	01
52	Murraya koenigii	Rutaceae	Kadipatta	01
53	Syzygium cumini	Myrtaceae	Jambhul	01
54	Clitoria ternatea	Fabaceae	Gokarni	02
55	Ficus elastica	Moraceae	Rubber	01
56	Plumeria pidice	Apocynaceae	Nagchampa	17
57	Santalum alum	Santalaceae	Chandan	01
58	Moringa oleifera	Moringaceae	Shevga	01
Total number of plants				122

Chapter No. 5: Use of Clean & Green Energy

Institute has been taken good initiative for energy conservation.

Installed 19KW Capacity Off-grid solar power plant.

**Observations :**

1. Percentage of Annual Power requirements met through renewable energy Sources is **55%**
2. Electricity Generation from Solar Power Plant **24320** Units/Year
3. Electricity Imported from Mahavitrans **19772** Units / Year

Suggestions :

1. Install Occupancy Sensors to minimize electricity unknown losses.
2. Install Solar Street Lights to Minimize Electricity Import during Night.

Chapter No. 6: Study of Waste Management

Environmental consciousness and sustainability friendly initiatives

Observations : Institute has been done Good Management of the various types of degradable and non-degradable waste

1. Solid waste management

- The college is taking utmost care of cleanliness and hygiene. Daily waste is collected by the cleaning staff and segregated into degradable and non-degradable waste.
- The leaves, all non-toxic and biodegradable waste, are collected and used to make compost through the composting process, for which 14 x 4.5 x 3 pit was made in the campus.
- Solid waste is generated in the form of plastic, glass, metal, newspapers, lab manuals, etc. is stored at one place and scrapped periodically for recycling.
- Non degradable waste (Dry and wet) is collected separately empty bottles, cartons are collected regularly at one place and handed over to the municipal vehicle for collection and proper disposal.
- College is using number of software's Vmedulife, Tally, ERP, SOUL, etc for digitalization concept that made steps towards way to less paper use.
- Use of paper printed on one side is encouraged for printing drafts before final document, meeting minutes, and institute level notices in office practices reducing paper based waste.
- Sanitary incineration machine is available in the girl's common room for the management of sanitary pads.



Handing over the solid waste to Muncipal Corporation vehicle

2. Liquid Waste Management

Liquid waste is generated in the form of solvents, solutions, reaction mixtures, preparations, etc. It is scientifically disposed as per waste management norms. The liquid waste generated during practical is disposed through well-constructed drainage system which is flushed with water from wash basins.



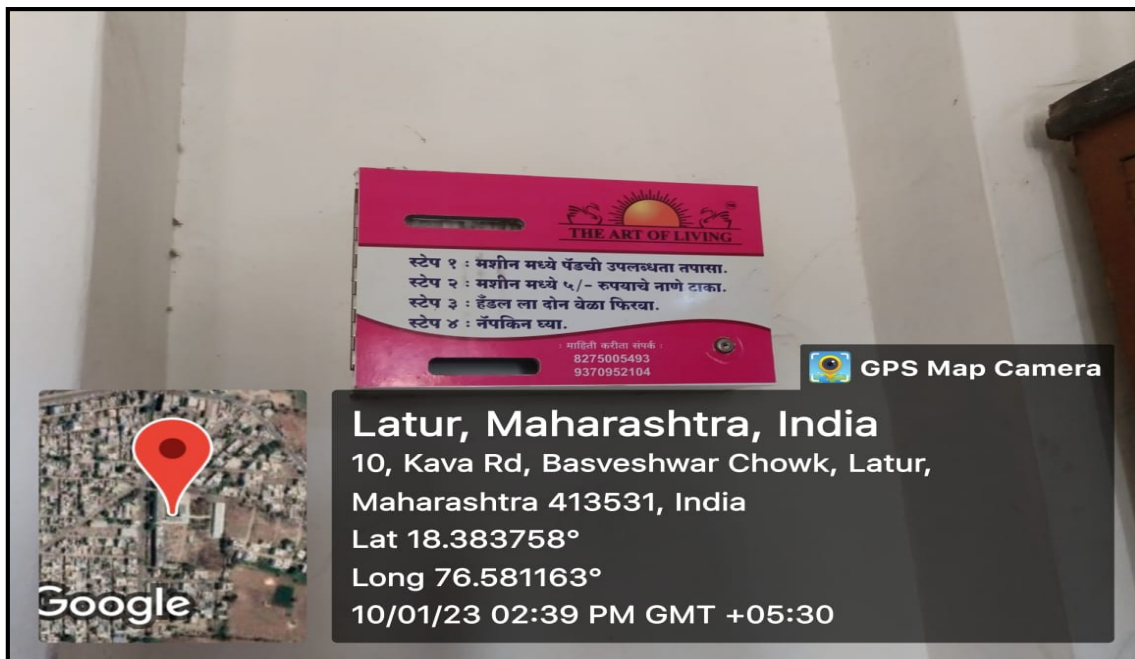
Liquid waste disposal soak pit



Drainage system for liquid waste disposal

3. Biomedical waste management

Biomedical waste is generated in the form of animal experimentation, bioassays, micro biological cultures, fluid and blood at the institute. Waste like cotton gauze, bandage, textiles, syringes, needles, blades and lancets are disposed along with degradable waste. Sanitary incineration machine is available in the girl's common room for the management of sanitary pads.



Incineration machine available at college



Sanitary Napkin burning incinerator unit

4. E-waste management

The college is having facility to collect and disposed off periodically the e-waste from institutes, E-wastes such as old computers, printers, laptops, scanner, CD's etc. batteries are collected centrally. E-waste is given to authorized vendors for possible recycling. We have put the collection box in the institute, where e-waste is collected. Students are also made aware of E-waste issues and its safe disposal.

5. E. Hazardous chemicals and radioactive waste management

Campus is free from any kind of radioactive waste. Hazardous chemicals like strong acids, strong alkalis and oxidizing agents are used in restricted and small quantities during practical's and research. Separate space is provided for storage of hazardous chemicals with highly visible sign. Chemicals are diluted sufficiently and then released into soak pits. Use of hazardous liquid chemicals generating hazardous fumes is carried out strictly in fuming cupboard to avoid spread of fumes. Inorganic waste is disposed off with water, while organic waste is burned out.



Waste Collection Tank

6. Compost Prepared in College Campus

The leaves, all non-toxic and biodegradable waste, are collected and used to make compost through the microbial composting process, for which 4.36M x 1.31M x 1.13M pits was made in the campus. Vermicomposting is the process of turning organic debris into worm castings. The content of the earthworm castings, along with the natural tillage by the worms burrowing action, enhances the permeability of water in the soil. Worm castings can hold close to nine times their weight in water “Vermiconversion,” or using earthworms to convert waste into soil additives.



Observations : Compost prepared in college campus



7. Water Management

An irrigation sprinkler (also known as a water sprinkler or simply a sprinkler) is a device used to irrigate (water) agricultural crops, lawns, landscapes, golf courses, and other areas.



Institute has been taken good initiative for water conservation.



Water scarcity is serious problem throughout the world for both urban & rural community. Urbanization, industrial development & increase in agricultural field & production has resulted in overexploitation of groundwater & surface water resources and resultant deterioration in water quality. The conventional water sources namely well, river and reservoirs, etc. are inadequate to fulfill water demand due to unbalanced rainfall. While the rainwater harvesting system investigate a new water source.

Rainwater Harvesting Recharge Points:



Observations: Institute has been taken good initiative for water conservation. Rainwater percolation pits were built in the campus to recharge bore well and help the water infiltration.

Rain Water Harvesting Filter Bed (Shosh Khadda)



Chapter No. 7 : CARBON FOOTPRINTING

A Carbon Foot print is defined as the Total Greenhouse Gas emissions, emitted due to various activities. In this we compute the emissions of Carbon-Di-Oxide, by usage of the various forms of Energy used by the College for performing its day to day activities. The College Imports Electrical Energy during Night for various Electrical gadgets.

Basis for computation of CO2 Emissions:

The basis of Calculation for CO2 emissions due to Electrical Energy are as under

1 Unit (kWh) of Electrical Energy releases **0.8 Kg of CO2** into atmosphere

Based on the above Data we compute the CO2 emissions which are being released in to the atmosphere by the College due to its Day to Day operations

Month wise Electricity Import details:

Month	Consumer No. 610557505868	Consumer No. 610550188492	Consumer No. 610550207241	Total
April 2022	1189	919	94	2202
May 2022	1070	601	201	1872
June 2022	1168	774	242	2184
July 2022	1142	611	137	1890
August 2022	1143	526	232	1901
September 2022	550	479	252	1281
October 2022	752	573	241	1566
November 2022	644	502	265	1411
December 2022	630	583	205	1418
January 2023	736	487	228	1451
February 2023	675	533	156	1364
March 2023	712	597	123	1432
			Total	19972

Observations: The College Imports Electrical Energy during Night for various Electrical gadgets. Annual Electricity Import = **19972** KWH/year

Calculations:

Electricity: **Input value (in KWh/Yr) X 0.85 (Emission Factor)**
= **Output value in (Kg of CO₂)**

Calculation for CO2 emissions due to Electrical Energy = 16976 Kg of CO₂ /year

Suggestions:

1. Reduce the Electricity Import during Night install Solar Streetlights.
2. Install Occupancy Sensors to minimize losses in Lighting System

Chapter No. 8 : Best Practices & Activities

Institute has been declared their Environment Policy

Policy Document On Environment and Energy Usage

- To install LED bulbs in the complete campus to save energy
- To operate institute building in most efficient energy manner.
- Maximum use of Renewable Energy.
- Encourage a culture of Energy conservation on campus.
- To take additional measures to continuously improve our energy consumption.
- To develop and maintain Energy Management System based on ISO: 50001.
- To encourage use of advanced technology to minimize energy consumption.
- To engage in dialogue with the government agencies, and actively work with the local organizations in the areas of environment, energy efficiency and sustainable development.
- To strengthen our employees' and students' environmental knowledge and skills in order to improve our own environmental performance.
- To provide information and training opportunities on energy saving measures.
- To train our employees and students through our Enviro Club to make them 'Go Green Specialists' and partners to plant trees each year.

Principal



Best Practices & Activities

Several significant and fruitful awareness programs both students and staff of the Campus are arranged every year in the campus. Reflections from students are Evident how effective such awareness programs conducted in the campus. Major programs conducted in the campus during the last Five years.

Campaigns: Nature camps, field trips and some of these activities are year round programs and others are regular year wiser semester wise or any other stipulated time bound programs.

Environmental education through systematic environmental management approach.

Conducted ITP By PCRA, Ministry of Petroleum & Natural Gas GOI



Institutional Training Program Joint Initiative
Channabasweshwar Pharmacy College (Degree) with PCRA,
Ministry of Petroleum & Natural Gas Government of India

Resource Person:

Kedar Khamitkar Energy Auditor & Faculty PCRA GOI

Workshop Topic : Lifestyle for Environment

लोकमत

आय विटनेस पर्यावरण जीवनशैलीविषयी कार्यशाळा...



लातुरातील चन्नबसवेश्वर फार्मसी कॉलेजमध्ये पर्यावरण जीवनशैली विषयावर कार्यशाळा घेण्यात येऊन विद्यार्थ्यांना मार्गदर्शन करण्यात आले. यावेळी केदार खमितकर, डॉ. पंचभाई, प्रा. मानके, प्रा. ठवरे, प्रा. मठपती.



CHANNABASWESHWAR PHARMACY COLLEGE (DEGREE), LATUR

Project under G20 Energy Transitions Working Group

Workshop On Lifestyle for Environment

The plastic bottles, polythene bags etc. collected by students to hand over to scrap



Tree Plantation Campaign

Tree plantation was done at Channabasweshwar Pharmacy College (Degree), Latur On the occasion of NSS day.

Mr. Bhimashankar Devnikar, Secretary , Panchakshari Shivacharya Trust, Dr. O.G. Bhusnure, Principal and teachers, non-teaching staff and students were present.



सोलापूर

प्रखर राष्ट्रीय विचारांचे दैनिक

तरुण भारत

न नं कर्मकले च्छुहा

संभाजीनगर, सातारा, सोलापूर, अहमदनगर, धारगिरिव, लातूर, नांदेड, परभणी, हिंगोली, जालना व बीड येथील प्रकाशित

चन्नबसवेश्वर फार्मसी महाविद्यालयाचा जिल्हाधिकाऱ्यांच्या हस्ते गौरव

तभा वृत्तसेवा
लातूर दि.१ ऑगस्ट -
मांजरा नदीच्या काठी लातूर जिल्हा प्रशासनाच्या वतीने मानवी साखळीच्या माध्यमातून राबविलेल्या वृक्षरोपण मोहिमेत चन्नबसवेश्वर फार्मसी महाविद्यालयातील विद्यार्थ्यांनी उत्स्फूर्त सहभाग नोंदविला. याबद्दल लातूरचे जिल्हाधिकारी बी. पी. पुश्वीराज यांच्या हस्ते महाविद्यालयाचा गौरव करण्यात आला. मांजरा नदीकाठी दुतर्फा १४ गावांमध्ये १० कि.मी. मानव साखळीच्या माध्यमातून २८ हजार वृक्ष लागवडीचा अभिनव प्रयोग जिल्हाधिकारी बी. पी. पुश्वीराज यांच्या मार्गदर्शनाखाली राबविण्यात आला. यामध्ये चन्नबसवेश्वर फार्मसी महाविद्यालयातील

रा. से. यो. विभागाच्या विद्यार्थ्यांनी उत्स्फूर्त सहभाग नोंदवून सलगरा (बु.) येथील मांजरा नदीकाठी ४ हजार १०० वृक्ष लागवड केली. याबद्दल जिल्हाधिकारी कार्यालयात जिल्हाधिकारी बी.पी. पुश्वीराज यांच्या हस्ते चन्नबसवेश्वर फार्मसी महाविद्यालयाचा स्मृती चिन्ह, प्रशस्ती प्रमाणपत्र देऊन गौरव करण्यात आला. या अभियानाच्या यशस्वी तेसाठी महाविद्यालयातील रा. से. यो. समन्वयक महेश मानके, प्रतिभा ठाकरे, शिवकुमार लढे, अविनाश स्वामी, प्रशांत बनसोडे, आरती जयशेट्टे,

स्नेहल जोगदंड, आकाश स्वामी. शुभम साखरे आदींनी सहभाग नोंदविला.
यावेळी जिल्हा परिषदेचे मुख्य कार्यकारी अधिकारी अभिनव गोयल. माजी आमदार पाशा पटेल, उपजिल्हाधिकारी नितीन वाघमारे, जिल्हा माहिती अधिकारी युवराज पाटील यांची यावेळी उपस्थिती होती.
याबद्दल संस्थेचे सचिव भीमाशंकर देवणीकर, संचालक विजयकुमार मठपती, सिध्देश्वर हलकुडे, सिध्दया स्वामी, डॉ. अशोक सांगवीकर, अनुप देवणीकर, महाविद्यालयाचे प्राचार्य डॉ. विजेयेंद्र स्वामी, प्राचार्य डॉ. संजय थोंटे यांच्यासह सर्वशिक्षक, शिक्षकेत्तर कर्मचारी आदींनी अभिनंदन केले.



The District Collector office of the Latur City appreciated for the efforts of the College towards environment sensitization.

