

Green Audit Report

(2022-23)



Mahatma Basweshwar Education Society's

M. S. Bidve Engineering College

Barshi Road, Pakharsangvi, Latur - 413531 Maharashtra



Green Audit Conducted by



KEDAR KHAMITKAR & ASSOCIATES

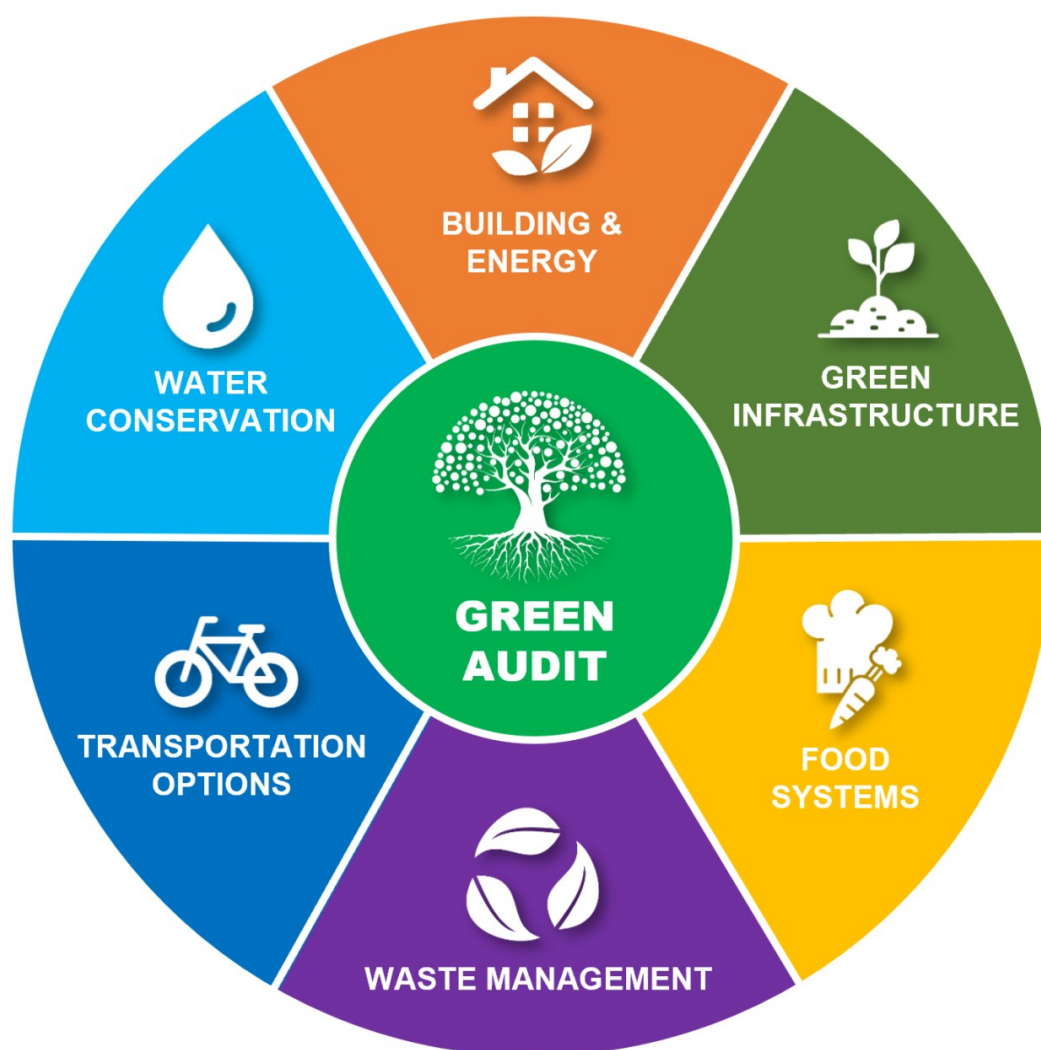
Energy Auditor & Planner

(Empanelled Mahaurja, Govt. of Maharashtra Institution)

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ACKNOWLEDGEMENT

We express our sincere gratitude to the management of M.S. Bidve Engineering College for awarding us the assignment of Green Audit of their Latur Campus.

We are thankful to: I/C Principal Prof. B.V. Dharne 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

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/ Suggestion's	
Green Cover - Plantation of Trees	At Present 25% area campus is having the Green cover.	Plantation of trees is started in the campus and the green cover is extended every year in the campus. Good Initiative
Use of Renewable Energy	Institute has been installed Solar Water heaters of 1800 Lit. Capacity in the campus. (Attached Photo)	Institute is planning to install rooftop Solar Power Plant of 75KW.
Water Conservation	Awareness for Water Conservation: recommended to Install Sign Boards.	It is recommended to install taps with reduced water flow
Rain Water harvesting	Rainwater Harvesting has been installed (Attached Photo)	Institute has been taken good initiative for water conservation
Misuse/ wastage of water	RO water providing safe drinking water.	Recommended for waste water treatment plant.
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	Transportation : Few Students commute in the ST Bus from City / rural Areas - Few Students & Staff using EV vehicles	Recommended to install EV Charging station.

Chapter No.1 Scope of Work & Green Audit Methodology

M.S. Bidve Engineering College, 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 M.S. Bidve Engineering College, Latur Campus has been conducted with specific methodology as follows:



Goals of Green Audit:

Conducted a green audit of M.S. Bidve Engineering College, 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

Mahatma Basweshwar Education Society has been established in 1963 at Latur. This Society is one of the oldest & reputed educational societies in Marathwada region. In the era of globalization, to create engineering graduates having knowledge with global insight, meeting the needs of industry, M.B. Education Society started M. S. Bidve Engineering College in 1983 at Latur, affiliated to Swami Ramanand Teerth Marathwada University, Nanded and approved by AICTE, New Delhi.



Courses offered

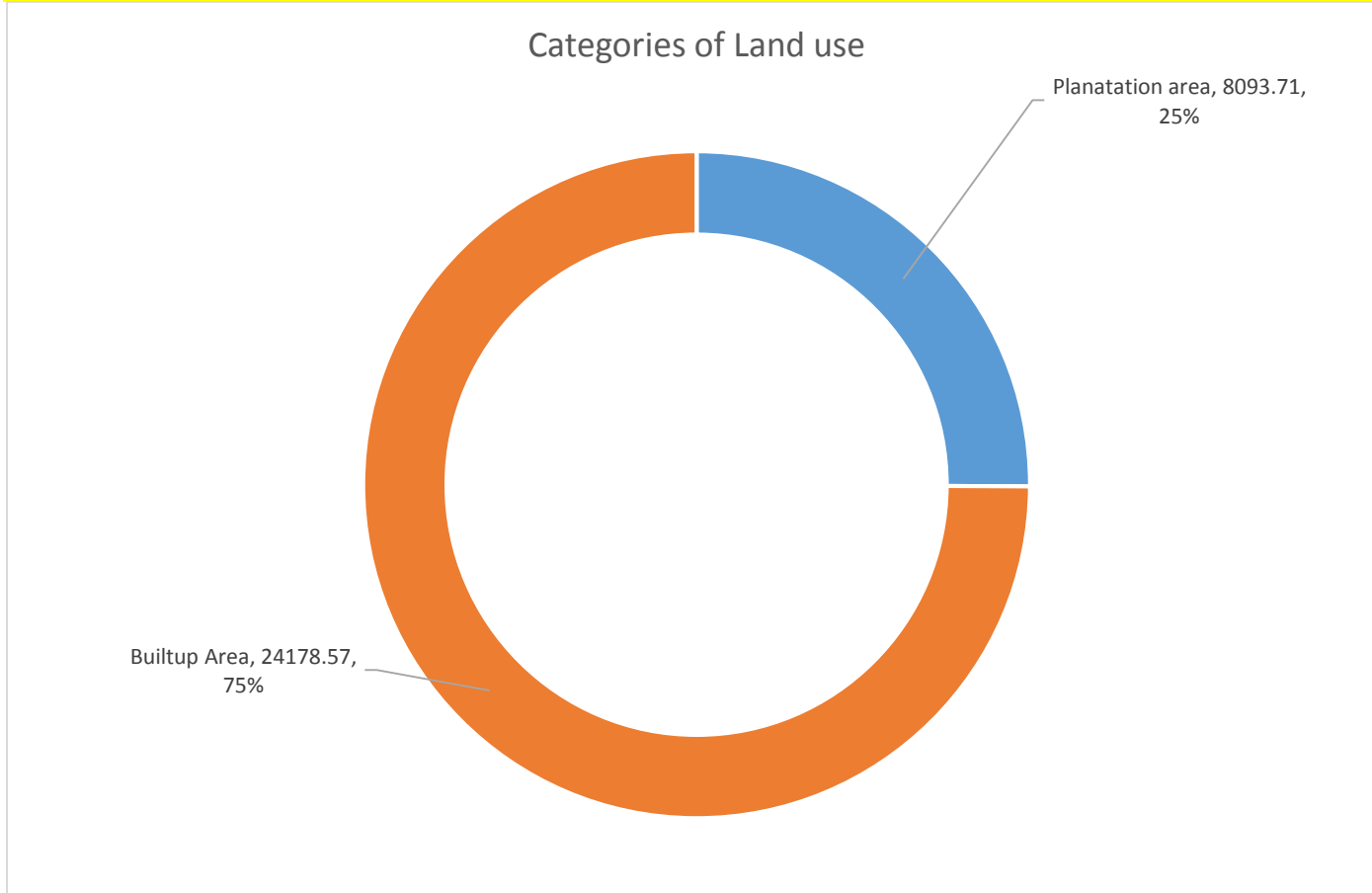
Sr.	UG Courses :
1	Civil Engineering
2	Mechanical Engineering
3	Electronics Engineering
4	Computer Science and Engineering
5	Electrical Engineering [Electrical and Power]
6	Information Technology
	PG Courses :
7	Civil Engineering (Structure)
8	Mechanical Engineering (Machine Design)
9	Electronics & Communication Engg.
10	Computer Engineering
11	Master of Computer Application(MCA)

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 **25%** area campus is having the Green cover.

Built up Area	24178,57	SQM
Plantation Area	8093.71	SQM
Total campus area	80966.54	SQM

Audit Framework and detailed findings of the Audit:



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



Observations : Plantation area 26%



Chapter No. 4 Green Cover - Plantation of Trees**List of Plants in the Campus:**

Sr.	Botanical Name	Common Name	Total
1	Azadirachta Indica	नीम	160
2	Moringa oleifera	शेवगा	9
3	Pithecellobium dulce	जंगली	118
4	Magnoliaceae	चाफा	13
5	Alstonia scholaris	सात पान	21
6	Aegle marmelos	बेल	12
7	Ficus benghalensis	वड	22
8	Annona squamosa	सिताफळ	4
9	Annona reticulata	राम फळ	2
10	Syzygium cumini	जांभूळ	19
11	Citrus limon	लिंबू	11
12	Murraya koenigii	कडीपाला	2
13	Manilkara zapota	चक्कू	1
14	Carica papaya	फफड	2
15	Limonia acidissima	कवट	1
16	Alstonia scholaris	सात पान	10
17	caesalpinia pulcherrima	संकेश्वर	17
18	Ficus religiosa	ravi tree	1
19	Tectona grandis	sagwan	10
20	Saraca asoca	अशोक	98
21	Bauhinia racemosa	आपटा	8
22	Simarouba glauca	laxmi taru	38
23	Ficus religiosa	पिंपळ	13
24	Nyctanthes arbor-tristis	पारिजात	7
25	Psidium guajava	पेरू	3
26	Platyclusus orientalis	मोरपंख	31
27	Hibiscus rosa-sinensis	जास्वंदी	16
28	Bauhinia racemosa	बदाम	12
29	Mangifera indica	आंबा	87
30	Phyllanthus emblica	आवळा	21
31	Tamarindus indica	चिंच	10
32	Hyophorbe lagenicaulis	bottelpalm	15
33	Cocos nucifera	नारियल	8

34	Bambusa	बांबू	8
35	Ficus racemosa	उंबर	3
36	Magnolia champaca	फुलाची झाडे	38
37	Lantana	tantanee	31
38	Tridax procumbens	samdad	3
39	Carissa carandas	karandee	3
40	Santalum album	चंदन	12
41	Eucalyptus	निलगिरी	31
42	Hyophorbe lagenicaulis,	Palm tree	28
43	Butea monosperma	padas	1
44	solanium indicum	kateri pan	22
45	Epipremnum aureum	Money plant	4
46	Total		986



Chapter No. 5: Use of renewable Energy

Institute has been taken good initiative for energy conservation.

Installed solar water heater in the Hostel

Observations : Seventeen unit of each 300 Liter = Total Capacity 5100 Liters/Day



A typical solar water heating system can save up to 1500 units of electricity every year, for every 100 liters per day of solar water heating capacity.

**Observations :**

Electricity Conserved 76500 KWh / Year

Suggestions :

Install rooftop Solar generation plant of 75 KWp



Chapter No. 6: Study of Waste Management

Environmental consciousness and sustainability friendly initiatives

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.
- 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 Tally for digitalization concept that made steps towards way to less paper use.



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

2. 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.

3. Water Management

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.

Soak Pit Functions and Design



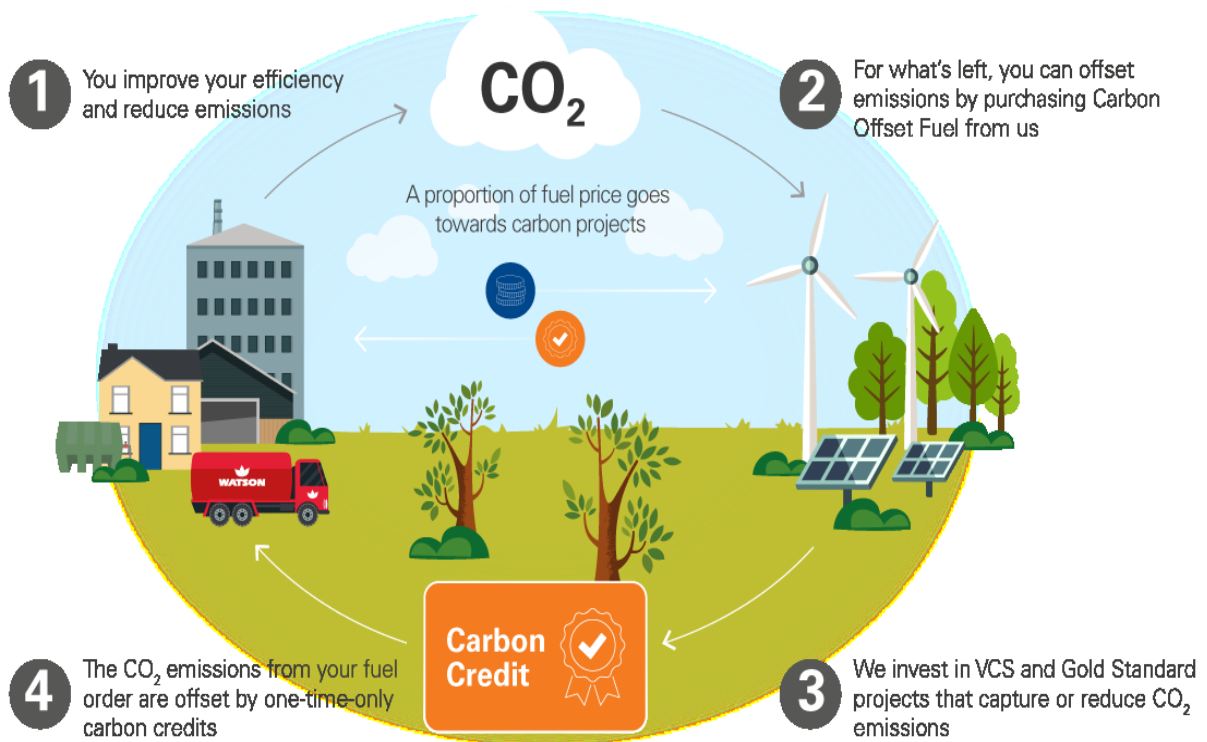
Chapter No. 7 : Study of Carbon Footprinting

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



Observations: Annual Electricity Import from MAHAVITRAN:

The College Imports Electrical Energy during Day & Night for various Electrical gadgets.

Annual Electricity Import = @**80000** 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 = @68000 Kg of CO₂ /year

Suggestions:

1. Reduce the Electricity Import by installation of Solar power plant of 75KWp.
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 at MSBECL

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.



PCRA, Ministry of Petroleum & Natural Gas, GOI Fuel Conservation Project conducted institutional Training program at M.S. Bidve Engineering College Latur. **Topic: Efficient use of Energy & Resources.** Electrical Head Prof. C A Pattnayak Sir, Prof. R. S. Vyavahare sir were present in the program.

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.



Fuel Conservation Project Joint Initiative between PCRA & MSBECL



PCRA
पेट्रोलियम संरक्षण अनुसंधान संघ
Ministry of Petroleum &
Natural Gas
Government of India



ऊर्जा संवर्धन
संयुक्त रूप से ... एक साथ



**M.S. Bidve Engg
College, Latur**

Petroleum Conservation Research Association
Ministry of Petroleum & Natural Gas, Govt. of India
and
**M.S. Bidve Engineering College,
Latur**

**Joint Initiative
Institutional Training Program**

Topic : Energy Efficiency and Energy Audit

Date : 28/12/2022 **Time :** 1.30 pm

Venue : M.S. Bidve Engg College, Latur

Speaker: Kedar Khamitkar
Energy Auditor,
Faculty PCRA- Ministry of Petroleum & Natural Gas, GoI

■ Invitee :

Prof. B.V. Dharne
Principal
M.S. Bidve Engg. College, Latur

■ Program Coordinator :

Prof. Pattnayak C A
H.O.D.
Electrical Electronics and Power Department



Joint Initiative between PCRA & MSBECL for Fuel Conservation



पेट्रोलियम एवं प्राकृतिक
गैस संरक्षण
संघ



ऊर्जा संवर्धन



PCRA
पेट्रोलियम संरक्षण अनुसंधान संघ



ईंधन अधिक न खपाएं,
आओ पर्यावरण बचाएं



EARTH DAY

Every year, Earth Day is observed on April 22 to raise awareness about saving the planet and how our actions add to climate change and global warming. It is also called International Mother Earth Day.

Environmental education through systematic environmental management approach.

Media report:

पर्यावरण संवर्धनासाठी सतर्क राहावे

रन फॉर ग्रीन मराठवाडा रॅलीत लातूरकर धावले

लातूर(प्रतिनिधी) :

वाढत्या तंत्रज्ञानापुढे मोठ्या प्रमाणात आव्हान देणारी गंभीर वायू म्हणजे सध्या वाढत असलेले प्रदुषण. वाढता नैसर्गिक असमतोल. त्यामुळे यावायूतील पुन्हा नैसर्गिक स्थैर्य निर्माण करावचे असेल प्रत्येकाने आपली नैतिक जबाबदारी समजून पर्यावरण संवर्धनासाठी सतर्क राहणे गरजेचे आहे. असे आवाहन रन फॉर ग्रीन मराठवाडा रॅलीच्या सांगता समारोह प्रसंगी पुण्याच्या टॉलर इंडिया या उद्योग समुहाचे प्रमुख उद्योजक भरत गिते यांनी केले आहे.

शनिवार दि. ११ ऑगस्ट रोजी लातूरच्या औसा रोडवरील ब्रिगेडा संकुलावरून टाऊन हॉल पर्यंत काढण्यात



आलेल्या रन फॉर ग्रीन मराठवाडा रॅलीच्या सांगता समारोह प्रसंगी ते बोलत होते. एम. एस. बिडवे इंजिनीअरिंग कॉलेज असोसिएशन या माजी विद्यार्थ्यांच्या संघटनेकडून या रॅलीचे आयोजन करण्यात आले होते. या रॅलीला महापौर सुरेश पवार यांनी हिरवा झेंडा दाखविला. या रॅलीमध्ये लातूरमधील अनेक क्षेत्रातील नामवंत मान्यवरांसह बिडवे इंजिनीअरिंग कॉलेजचे आजी माजी विद्यार्थ्यांनी ही सहभाग नोंदविला होता.

पर्यावरण विषयक जनजागृती करण्यासाठी तसेच वृक्ष लागवड व संवर्धन, पाण्याचे प्रदुषण, पाण्याचा योग्य वापर, स्वच्छता, सध्यास्थितीत असणाऱ्या इंधनामुळे निसर्गावर होणारे दुष्परिणाम, विजेचे, प्लास्टीकचे दुष्परिणाम, तसेच सौर ऊर्जा व जैविक उर्जेवद्दल असणाऱ्या सेवा सुविधांच्या माध्यमातून पर्यावरण संवर्धन करणे करता येईल याची माहिती देण्यात आली. झाडे लावा, झाडे जगवा, आपले शहर व परिसर स्वच्छ ठेवा,

जैविक व नैसर्गिक उर्जा स्रोतांचा अधिकाधिक उपयोग करा. अशा आशयाच्या रॅली दरम्यान रॅलीत सहभागी विद्यार्थ्यांनी घोषणा दिल्या.मान्यवरांची भाषणेही झाली. यावेळी जमलेल्या नागरिकांना वरील सर्व बाबींची माहिती पटवून सांगून त्यासाठी उपलब्ध असलेल्या शासकीय स्तरावर असणाऱ्या सेवा सुविधांबद्दलही थोडक्यात माहिती दिली. गिते पुढे म्हणाले की, वर्तमान स्थितीत वापरात असणारे उणास्रोत हे हळू हळू

कमी होणारे असून त्यांना पर्यायी स्रोतांची निर्मिती करणे गरजेचे आहे. त्याशिवाय या स्रोतांतून पर्यावरणाला मारक अशा काही बाबी नसाव्यात. अशा स्रोतांमध्ये सौर ऊर्जा आहे, जैविक उर्जा यांचा उपयोग करून त्यातून पर्यावरणाचे संवर्धन ही साधता येते.या कार्यक्रमासाठी उद्योजक विनीत कपूर, संतोष सिंध, विष्णुदास भुतडा, एम. एस. बिडवे इंजिनीअरिंग कॉलेजचे प्राचार्य नरेंद्र खटोड, यांच्यासह एम.एस.बिडवे इंजिनीअरिंग कॉलेज असोसिएशनचे सॅक्रेटरी धर्मराज विराजदार, उपाध्यक्ष प्रा. राजशंखर बिडवे आणि कोषाध्यक्ष प्रा. के. एस. उपासे, प्रा. अविनाश पेंढे, प्रा. चिन्मय पटनायक, प्रा. ज्योती हत्रे, प्रा. अश्विनी विरादार, प्रा. संजय मंत्री, प्रा. विपुल शहा, प्रा. सोमप्रकाश चौधरी, सुनिल मिटकरी, प्रा. राजेंद्र प्रसाद तसेच महाविद्यालयाचे आजी माजी विद्यार्थी व शिक्षकत्तर कर्मचारी व मोठ्या संख्येने शहरातील नागरिक उपस्थित होते.

पेट्रोलियम संरक्षण अनुसंधान संघाचे एमएस बिडवे अभियांत्रिकी महाविद्यालयात विद्यार्थ्यांना प्रशिक्षण



लातूर,प्रतिनिधी:कोणत्याही देशासाठी ऊर्जा महत्त्वाची गरज आहे. देशाचा विकास ऊर्जेच्या नियोजनावर अवलंबून असतो. ऊर्जेचा योग्य पद्धतीने वापर न केल्यास पर्यावरणावर त्याचा परिणाम होतो. म्हणूनच

पर्यावरण आणि ऊर्जा ही दोन अशी क्षेत्रे आहेत जेथे करिअरची मोठी संधी उपलब्ध असल्याचे एनर्जी ऑडिटर केदार खमितकर यांनी सांगितले. 'एनर्जी ऑडिट ही ऊर्जा संवर्धनाची पहिली पायरी आहे...' या

विषयावरती विद्युत अभियांत्रिकी विद्यार्थ्यांना मार्गदर्शन करण्यात आले. एमएस बिडवे अभियांत्रिकी महाविद्यालय आणि पीसीआरए यांच्या संयुक्त विद्यमाने ही कार्यशाळा आयोजित करण्यात आली होती. पेट्रोलियम संरक्षण अनुसंधान संघ हे भारत सरकारच्या पेट्रोलियम आणि नैसर्गिक वायू मंत्रालयाद्वारे संचालित सोसायटी आहे. प्र. प्राचार्य बी.वी. धरणे, विभाग प्रमुख चिन्मय पटनायक, प्राध्यापक अतुल व्यवहारे यांची उपस्थिती होती. विद्यार्थ्यांनी स्वतः होम एनर्जी ऑडिट करावे यासाठी खमीतकर यांनी प्रात्यक्षिक दिले. विद्यार्थ्यांचा चांगला प्रतिसाद मिळाला.



FIVE WAYS TO CONTROL CLIMATE CHANGE



GREEN YOUR COMMUTE

Explore new options to commute and reduce your carbon footprint. Choose to walk, share car, ride bicycle, or electric vehicle.



CONSERVE FUEL

Stop the reckless of fuel and use it more sensibly. Conserving fuel reduces pollution for a cleaner and greener environment.



GET AN ENERGY AUDIT DONE

Get an energy audit done to determine the overuse of energy.



PLANT TREES

Plant trees and support reforestation. This way CO₂ level will be decreased, as trees use sunlight to absorb carbon dioxide from the atmosphere through photosynthesis and store it as carbon in the form of wood.



REDUCE, REUSE & RECYCLE

Reduce paper use, reuse whatever you can and recycle waste materials into a valuable resource. Be an environmentally conscious consumer.



**PCRA COMMITTED TO PETROLEUM CONSERVATION
FOR A CLEANER AND GREENER ENVIRONMENT**
JUST CLIMATE ACTION