

# Internal Green Audit Program

This is to certify that the Internal Green Audit Report of

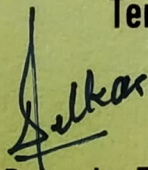
*B. G. E. Society's*

## Shri R.L.T. College of Science

New Radhakisan Plots, Akola

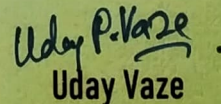
is based on the data collected during the physical visits to the college. Further, it is certified that the core information related to green initiatives and activities was collected and scrutinized by Internal Green Audit Committee. The college has successfully established eco-friendly practices and management systems at all levels. The evidence is substantial. We appreciate the efforts taken by teaching, nonteaching staff, and students towards keeping the campus green.

Term of validity: April 1<sup>st</sup>, 2019 - March 31<sup>st</sup>, 2020



Devendra Telkar

Internal Green Audit Committee Member  
Srushti Vaibhav  
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Devdatta Apartment, Gaddam Plots, Akola



Uday Vaze

Internal Green Audit Committee Member  
Environmental Management Consultant  
Environment & Forest Education Center  
Environmental Consultant, Ramdas Peth, Akola



# Internal Environment Audit Program

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New Radhakisan Plots, Akola

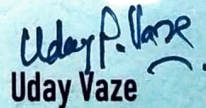
is based on the data collected during the physical visits to the college. Further, it is certified that the core information related to environment protection & monitoring activities were collected and scrutinized by Internal Environment Audit Committee. The college has successfully established environmental practices and management systems at all levels. The evidence is substantial.

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B. G. E. Society's



## **Shri R.L.T. College of Science**

New Radhakisan Plots, Akola

Maharashtra 444001, India

2019 - 2020

# **INTERNAL GREEN & ENVIRONMENT AUDIT REPORT**



Prepared by:

**Internal Green & Environment Audit Committee  
Shri R.L.T. College of Science, Akola**



## Acknowledgement

Internal Green and Environment Audit Committee would like to thank the management of the B.G.E. Society, teaching & non-teaching staff, students, parents, and adjoining community for extending their co-operation and valuable inputs in gathering data. This is a significant step taken by the college and their efforts towards their contribution in conservation of resources, worth mentioning here.

Internal Green and Environment Audit Committee also wish to thank EFEC for helping Internal Green and Environment Audit Committee in organizing 'Workshop on understanding Environment Management System' and appreciate their cooperation in extending their knowledge throughout the process of Internal Green and Environment Audit program.

Internal Green & Environment Audit Committee expresses gratitude towards the selfless contribution made by various NGOs and individuals in contributing their knowledge and expertise in compiling technical data required in the preparation of the audit.

Our special thanks are due to the Principal Dr. V. D. Nanoty of Shri R.L.T. College of Science, Akola for giving us valuable guidance.

## About Shri R.L.T. College of Science

Shri R.L.T. College of Science, Akola affiliated to Sant Gadge Baba Amravati University, Amravati was established under The Berar General Education Society, Akola on 1<sup>st</sup> April 1970 and celebrating its Golden Jubilee year. The college is re-accredited by NAAC with an 'A' Grade, CGPA-3.12 (Third Cycle). The college offers B.Sc. , M. Sc., Ph. D. and career-oriented programs like CCLT, DCLT, and ADCLT. It also comprises 11<sup>th</sup> and 12<sup>th</sup> standard education. At present, there are 14 departments in college i.e. Biochemistry, Bioinformatic, Botany, Chemistry, Computer Science, Electronics, Information Technology, Mathematics, Microbiology, Physics, Zoology, Languages, Physical Education and Library. The college is one of the premier institutions delivering excellent education through dedicated collaborated efforts towards achieving recognition and honor at the national and international levels.

Google map satellite photo of Shri R. L. T. College of Science, Akola

Latitude : 20°42'21.47"N - Longitude : 77° 0'21.85"E





B. G. E. Society's

## Shri R.L.T. College of Science

New Radhakisan Plots, Akola, Maharashtra 444001

### IGEAC : Internal Green and Environment Audit Committee

Sr. No.	Name	Designation	Sign
01	Dr. V. D. Nanoty	Principal	
02	Mrs. V. N. Badgujar	Chairman, IGEAC	
03	Dr. R. J. Rahatgaonkar	IQAC, Co-ordinator	
04	Dr. P. M. Khadse	Member, IGEAC	
05	Dr. S. M. Nagrale	HOD, Member, IGEAC	
06	Dr. P. T. Agrawal	HOD, Member, IGEAC	
07	Dr. A. A. Sangole	Member, IGEAC	
08	Prof. S. V. Madavi	Member, IGEAC	
09	Dr. R. P. Joshi	Member, IGEAC	
10	Dr. A. M. Amle (Sawarkar)	Member, IGEAC	
11	Dr. S. R. Kohchale	Member, IGEAC	
12	Dr. K. M. Heda	Member, IGEAC	
13	Prof. S. N. Gawande	Member, IGEAC	
14	Mr. Devendra Telkar	External Member, IGEAC NGO : Srushti Vaibhav	
15	Mr. Uday Vaze	External Member, IGEAC Director : EFEC	
16	Mr. Deepak Wankhade	Member IGEAC (Non Teaching Staff Rep.)	
17	Mr. S. B. Shelke	Member, IGEAC, Gardner	

The Internal Green & Environment Audit Committee authenticate observations and recommendations in this report.

### Internal Green & Environment Audit Key Steps

Pre Audit Training Workshop : August 2019

Questionnaire Data Collection started : September 2019

Draft report completed : April 2020

Review Meeting : May 2020

Final report completed : June 2020



## **Synthesis Document**

Internal Green & Environment Audit is assigned to the Criteria 7 of NAAC, National Assessment, and Accreditation Council. The Internal Green & Environment Audit Committee was formed. The committee planned for conducting an Internal Green and Environmental Audit of the college in July 2019. The intention to carry an Internal Green & Environment Audit was to make sure that the practices, processes, and activities followed in the campus are eco-friendly. The questionnaire was obtained by an external member of the Internal Green & Environment Audit Committee. It was observed and evidence was brought together 'what degree to which the Departments comply with the applicable regulations, policies, and standards to ensure that the development of the college aims at sustainable development and keeping the college campus green. The methodology used included was right from collecting data through questionnaire, insight inspection, evaluation, computation, conducting physical survey and review of the relevant documentation.

## **Statement of Assertion**

The Internal Green & Environment Audit Committee has adopted the audit procedure that meets the terms of International Standards of Internal Auditing Practices. The committee is causing to feel certain that adequate and relevant audit procedures were followed, concrete evidence was gathered and conclusions were drawn from facts. The Internal Green and Environment Audit committee believes that recommendations are for improving the effectiveness of environmental management efforts made by Shri R.L.T. College of Science. Changes or additions in management practices should be systemic, must be done through series of small steps and every concerned individual must be well informed about changes and additions made in management practices. Recommendations are based on evidence compiled in this report as they existed at the time of the audit.

## **Compendium**

It was truly evident from the data collected at Shri R. L. T. College of Science that teaching & non-teaching staff, students, vendors, and service providers of the college are aware of the importance of efforts to save and protect the environment in the campus in every day's work. The college staff follows the best course of action such as reducing all types of waste, time to time garden maintenance, follow composting practices, ways and means to reduce energy consumption, conduct review meetings, organize environmental educational activities for staff as well as for students. Although, it was also observed that, many of the practices followed in the college are still incipient and needs further action to improvise course of actions.



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## Introduction

The expeditious urbanization and economic development at the local, national and international levels have led to several environmental and ecological emergencies. To prevent damages due to site-specific activities, practices, processes, and procedures followed by various institutions, businesses, organizations, or factories, it becomes essential to adopt methods, processes, and procedures for making green campuses for the institutions, businesses, organizations, or factories which will lead for sustainable development. Every organization has systems to manage finance, health, and safety, it is equally important that every organization must have an Environmental Management Performance Checking System for managing environmental issues.

Shri R.L.T. College of Science is very much aware of its responsibility towards keeping campus green and strives hard to make it pollution-free. The college strives hard to maintain an eco-friendly ambiance and achieve continual improvement in environmental performance. The main intention of conducting the Internal Green and Environmental auditing is understood and continuous efforts are made in achieving objectives mentioned in the Environment Policy of the college. The college invites consultants and subject specialists in environment conservation to modify its working on every six months interval. The methodology to conduct Internal Green Audit & Environmental Audit was designed with the help of consultants and NGOs with the teaching staff of the college. It includes a draft of the questionnaire, in-situ site inspection of the campus, scrutinize documentation, monitors procedures, practices, and processes carefully. The formation of an internal audit committee with the involvement of an external subject specialist has made significant recordings. The internal audit committee has made short time and long term recommendations. The committee proposed remedial procedures to reduce the carbon footprint of the college. It works for the betterment of eco-friendly campuses including air, water, noise, soil quality, waste management, care for flora & fauna on campus, the importance of paperless working, plans for adopting alternative energy creation by adopting solar-powered energy sources.

### Internal Green Audit

An Internal Green Audit is a process of systematic identification, evaluation, documentation, reporting, and analysis of components of environmental diversity of various institutions, businesses, organizations, or factories. It aims to analyze environmental practices and processes within and outside of the targeted institution, business, organization, or factory, which will have an impact on the ecologically friendly environmentally safe ambiance.

### Internal Environment Audit

An Internal Environmental Audit is an assessment performed to ensure that institutions, businesses, organizations, or factories are complying with environmental policies. It examines the amount of harm or risk of injury that may be posed by the assessed entity and determines the types of pollution being produced by looking at a broad range of site-specific activities, practices, processes, and procedures. The information compiled from these factors determines what remedial procedures are required to be added for the better good.

### Scope

Internal Green Audit & Environmental Audit play a significant role in the continuous operation of institutions, businesses, organizations, or factories. It keeps institutions, accountable by scrutinizing their site-specific activities and determining what remedial measures are required to be added or put in place to ensure institutions, businesses, organizations, or factories are following the proper statute.

### Objective

The key objectives of an Internal Green and Environmental Audit, therefore, are to: determine how well the environmental management systems and equipment are performing, verify compliance with the relevant national, local, or other laws and regulations, minimize human exposure to risks from environmental, health and safety problems.





## Methodology

In the first meeting of Internal Green & Environment Audit Committee, it was unanimously decided that an external party will look into the overall infrastructure, procedures, practices, and operation of the college and will draft a detailed Questionnaire. Questionnaires provide a relatively rapid and efficient way of obtaining large amounts of information from a large number of people. Questionnaire are easy to respond to. Specifically, answers obtained through closed-ended questions with multiple choice answer options are easy to obtain and less time-consuming. Answers obtained to the open-ended questionnaire are analyzed using qualitative methods and they involve discussions and critical analyses without any difficulty. It is useful because the information can lead to concrete conclusions. The methodology also included a physical inspection of the campus, observation, and review of the documentation, interviewing key persons and data analysis, measurements, and suggesting recommendations.

The efforts were taken to understand the following focus areas and emphasis was given to know facts on the ground :

What measures are taken by the college to maintain greenery and the efforts taken for keeping environment protection policy as priority as declared by the college in its Environment Policy?

What efforts have been put in by the college to offer clean water to students and staff of the college?

What efforts are made by college to maintain and control Rain Water Harvesting, Waste Water Management effectively?

What efforts are made by the college to conserve energy such as electrical use?

How does the college monitor and control all types of waste?

How extra efforts are taken to control vehicular pollution caused by automobiles passing by adjacent roads along the college campus?

To monitor and evaluate how collage benefits to the community in and around the college campus.

To scrutinize the data provided by the college in regard to efforts and initiatives taken by the NSS and Environment Cell.

To make physical verification of positive impact made by initiative by the college such efficacy of Bio-gas plant, solar plant, and floral species on the campus.

To study and evaluate various green initiatives and activities are organized by the college.

To interview stakeholders of the college about plans for environment protection practices, processes, and procedures.



## Environment Policy

Shri R.L.T. College of Science not only target to impart quality education but also understand responsibility towards the protection of the environment for the future generation. The college wishes to create environmentally safe practices to ensure that the college campus is kept green by reducing its carbon foot-print. The college will monitor its operation and make it economically successful & sustainable along with being socially responsible.

Environment Policy will compel every one of the college to follow practices, processes, and operations supported by identified groups and individuals. Environment Policy has the potential to develop exciting new co-curricular and extracurricular practices that encourage students to take part voluntarily that benefits them in any way.

Environment Policy also targets to enroll external parties such as vendors and suppliers in achieving the environment conservation objective in their relevant fields too.

### Aims and Objectives of Environment Policy

#### Managing environment

- To promote stringent environmental management systems, processes, and operations.
- To reduce sources of pollution at every extent of its operation and to adopt the PDCA model to it.
- To find ways to improve its environmental performance.
- To ensure that students get updated knowledge about environment conservation practices.
- To involve the community in and around the collage to achieve its clean environment objective.

#### Efficient use of energy

- To achieve success in efficient use of energy to reduce its carbon footprint.
- To combat pollution caused by vehicular pollution by maintaining greenery on campus.
- To install energy efficient gadgets by introducing solar technology in the creation of clean energy.

#### Sensible use of water

- To make everyone aware of importance of the water.
- To find out new ways for reducing water footprint.
- To appeal and enroll all vendors and suppliers to supply eco-friendly products and services to promote sustainable resource management practices.

#### Efforts to waste reduction

- To identify sources of waste generation and reduce them.
- To segregate the waste and ensure its safe disposal with the help of Akola Municipal Corporation and with authorized E-waste disposal agencies in & around the Akola district.

#### Ethical practice

- To promote activities that protect bio-diversity on the campus.
- To plan and act on continuous improvement in line with environmental protection.
- To enhance the profile of the college by elevating the best academic and environmental practices.

#### Extension education activities

- To make special efforts about organizing workshops and activities in line with environmental education.
- To make aware the staff and students of the college about environmental impact & it's performance .



## Location of the college

Shri R.L.T. College of Science at Akola in Maharashtra, India is a prominent science college of the Vidarbha region as well as in India. It is in center of the Akola city. It is well connected by road and railway network, enabling students from adjoining district to reach the college with ease.

Latitude : 20°42'21.47"N

Longitude : 77° 0'21.85"E

## Land use and land cover (Annex-A)

The total area of the college campus  
Area reserved for green cover

Built-up area of the college premises  
Annexure-I: College Campus Drawing

## Population:

Students :

Teaching Staff:

Non Teaching Staff:

Floating Population

## Internal Green and Environment Audit Training

Shri R. L. T. College of Akola has a well-defined decentralized and participatory organizational structure to coordinate and promote academic and administrative functions. The organizational structure has different units of statutory bodies. The principal of the college always strives hard to promote environmental conservation in every possible way. The college has organized Pre Internal Green & Environment Audit Orientation Program and taken special efforts in enrolling teaching, non-teaching staff, students, and community representatives to attend the meeting. Environmentalists & subject specialists presented various topics such as protecting the environment by preventing wrong practices, enhancing environmental performance, introducing new ways to reduce pollution.

## Audit Questionnaire & Audit Forms

Internal Green and Environment Audit Committee were given a host of audit forms and questionnaires. The committee was well supported by the teaching and non-teaching staff of the college to collect the data. The evidence were collected by referring Questionnaire and by making field visits to the college.

## Sound Pressure Level Testing

Several sound pressure level tests were carried out to measure noise pollution created by vehicles passing by the college campus. The college is situated in the heart of the city. The road adjacent to the college campus is one of the busiest roads in the city. The results of the tests (Annex -L) came out to be slightly above the prescribed limit. To combat the noise pollution caused by vehicular noise the Internal Green and Environment Committee has recommended remedial measures (Annex-M).

## Primary Air Quality

Several primary air quality tests were carried out. The results of the tests (Annex No. IV) came out to be within the prescribed limit. To stop air pollution caused by vehicular emissions entering the campus. The committee has recommended remedial measures to improve the air quality of the campus caused due to vehicular pollution made by vehicles passing by city road adjacent to the college. The recommendation is to create a barrier made by thick plantations. The Internal Green & Environment Committee has suggested specific species which are to be planted by the college. (Annex No. V).



## **Installation of Biogas Plant**

A negligible amount of organic waste (vegetable & food waste) is generated in the kitchen of the college girl's hostel. Shri R.L.T. College of Science has installed a biogas plant that generates half of the gas required for cooking in the kitchen. The installation of solar panels, a biogas plant, and a rainwater harvesting system are noteworthy initiatives the college has endeavored recently. (Annex-I)

## **Biodiversity on campus: Flora**

The college has been planting and conserving trees, climbers, creepers, herbs, and shrubs since its inception in 1970. A wide variety of floral species can be seen thriving on the campus. The college has taken a painstaking effort in maintaining green cover. A botanical garden nurture host of the wide variety of medicinal species for educational purpose. (Annex-B)

## **Fauna**

The green cover in the campus helps in creating favorable conditions for many living organisms such as butterflies, insects, ladybird beetles, spiders, birds, and squirrels. (Annex-C).

## **Green initiatives**

Shri R. L. T. College of Science is a premier institute in Vidarbha and is aware of importance of educating students about environment and special efforts are taken by Environment Cell and NSS unit in initiating activities that reduces its adverse impacts on environment. Initiative such as Tree Plantations, No Vehicle Day, Save Energy, Burn Ban, Reducing Paper Usage, Bio-gas Plant, Rain Water Harvesting, Plastic Waste Free Campus, Regular Maintenance Of Electrical Gadget, Installing Energy Efficient Electrical Fixtures, Awareness Training Workshops, Waste Disposal, Solid Waste Management, Organic Waste Management, are organized by the college. (Annex-D) Internal Green & Environment Committee has recommended few remedial measures (Annex-E)

## **Recommendations**

Short term and long term recommendations are given by Internal Green & Environment Audit Committee. The recommendations made by the committee will improve the environment and will make positive impact on environment performance of the college. (Annex-E)

Shri R. L. T. College of Science has received many awards and recognition over the last few years. (Annex-F)

## **Post Green & Environment Audit Commitments**

Review meeting was organized to discuss about recommendations made by committee after the Internal Green & Environment Audit process was completed. The Internal Green & Environment Audit Committee has given special attention to train every member of the college about PDCA model. PDCA i.e. Plan Do, Check and Act model surely helps in bringing continuous improvement in every working of the college.

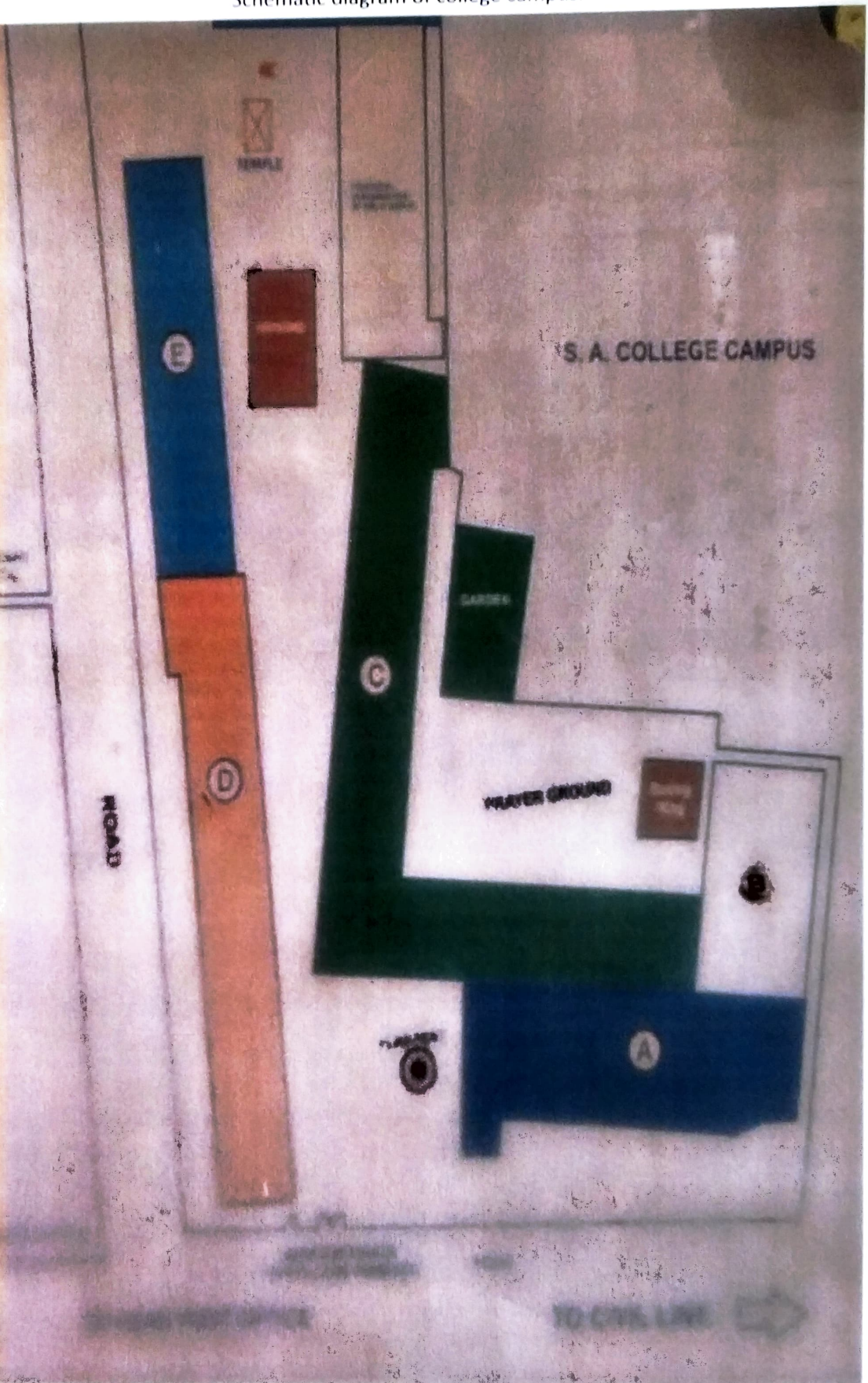
## **Internal Green & Environment Audit Document Storage**

All the documents related to Internal Green and Environment Audit are stored at IQAC chamber in the cupboard. And it can be viewed by any member of the committee or by any stakeholder with a prior appointment with IQAC co-ordinator.



## Annex-A

Schematic diagram of college campus.





## Annex-B

Bio-diversity in campus : Flora

### List of plants at various places in the campus

English Name	Botanical Name	Type	Place	Total Plants
False Ashoka अशोक	<i>Polyalthia longifolia</i>	Tree	Admin bldg, Adm, Ch Lab, Ph Lab	11
Yellow trumpet flower	<i>Ticoma stans</i>	Tree	Admin Bldg, Aud Ph Lab,	6
Cactus केतकी	<i>Opuntia ficus-indica</i>	Cactus	Admin Building	1
Korean Arbor थुजा	<i>Thuja koraiensis</i>	Tree	Admin Bldg, BG	6
Cycad सायकस	<i>Cycas revoluta</i>	Cycad	Admin Bldg, BG	2
Bougainvillea बोगनवेल	<i>Bougainvillea spectabilis</i>	Shrub	Auditorium, BG	4
Neem Tree कडुलिंब	<i>Azadirachta indica</i>	Tree	Lib, Ladies Hostel	4
Croton क्रोटॉन	<i>Codiaeum variegatum</i>	Herb	Lib, Ch Lab, Ph Lab, BG	40
Jasmin मोगरा	<i>Jasminum officinale</i>	Herb	Lib	1
Jasmin sp जुई	<i>Jasminum auriculatum</i>	Vine	Lib	1
Indian Fig औदुंबर	<i>Ficus glomerata</i>	Tree	Ladies Hostel	1
Sodom Apple रूई	<i>Calotropis procera</i>	Shrub	Ladies Hostel	2
Golden Champa सोन चाफा	<i>Michelia champaca</i>	Tree	Ch Lab	3
Mango आंबा	<i>Mangifera indica</i>	Tree	Ch Lab, BG	2
Cassia मोठी तरवड	<i>Cassia glauca</i>	Tree	Ch Lab	7
Oyster Plant ----	<i>Tradescantia spathacea</i>	Shrub	Ch Lab	5
Asparagus शतावरी	<i>Asparagus racemosus</i>	Shrub	Ch Lab, BG	9
Peacock Flower शंकासूर	<i>Caesalpinia pulcherrima</i>	Tree	Ph Lab,	1
Indian Almond गोड बदाम	<i>Terminalia catappa</i>	Tree	Ph Lab,	1
Sugar Apple सिताफल	<i>Annona quamosa</i>	Tree	Ph Lab,	1
Passion Flower कृष्णकमळ	<i>Passiflora incarnata</i>	Vine	Ph Lab,	1
Euphorbia Pink ---	<i>Euphorbia milli</i>	Shrub	Ph Lab	1
Hibiscus जास्वंद	<i>Hibiscus rosa-sinensis</i>	Tree	Botanical Garden BG	4
Cassia निरगुडी	<i>Vitex negundo</i>	Shrub	BG	6
Crape Jasmine तगर	<i>Tabernaemontana divaricata</i>	Shrub	BG	2
Indian Gooseberry आवळा	<i>Emblica officinalis</i>	Tree	BG	1
Bamboo बांबू	<i>Bambusa bambos</i>	Tree	BG	5
Night-fl Jasmine पारिजात	<i>Nyctanthes arbor-tristis</i>	Tree	BG	1
Jungle Jerenium ---	<i>Ixora coccinea</i>	Tree	BG	2
Aloe Vera अँलोव्हेरा	<i>Aloe barbadensis miller</i>	Shrub	BG	4
Scarlet Bush ---	<i>Hamelia patens</i>	Shrub	BG	1
Basil तुळस	<i>Ocimum sanctum</i>	Tree	BG	6
Periwinkle सदाफुली	<i>Vinca rosea</i>	Shrub	BG	6
Whistling Pine सरू	<i>Casuarina equisetifolia</i>	Tree	BG	1
Narium कण्हेर	<i>Narium oliender</i>	Tree	BG	1
D. Mahatma महात्मा	<i>Cordyline Terminalis</i>	Shrub	BG	2
Golden Pothos ---	<i>Epipremnum aureum</i>	Vine	BG	5



## Annex-B

### Bio-diversity in campus : Flora

cont from page no.

English Name	Botanical Name	Type	Place	Total Plants
Lemon Grass गवती चहा	<i>Cymbopogon flexuosus</i>	Herb	BG	5
Travellers Palm पाम	<i>Ravenala madagascariensis</i>	Palm	BG	1
Fever Tree	<i>Pinckneya pubens</i>	Shrub	BG	1
Schott Indica ब्रम्ह राक्षस	<i>Alocasia indica</i>	Shrub	BG	25
Indian Pennywort ब्राम्ही	<i>Bacopa monnieri</i>	Shrub	BG	5
Green Chiretta काळमेघ	<i>Andrographis paniculata</i>	Shrub	BG	5
Devils Backbone कांडवेल	<i>Cissus quadrangularis</i> Orn	Shrub	BG	5
Red Flame Ivy निरगुडी	<i>Hemigraphis colorata</i>	Shrub	BG	5
Indian Laburnum अमलतास	<i>Cassia fistula</i>	Tree	BG	5
Touch me not लाजाळू	<i>Mimosa pudica</i>	Herb	BG	5
Star Grass Lily जं. लसूण	<i>Iphigenia stellata</i>	Herb	BG	5
Bhringraja माका	<i>Eclipta alba</i>	Shrub	BG	5
Indian Borage पान ओवा	<i>Coleus amboinicus</i>	Herb	BG	5
Mint Plant पुदिना	<i>Mentha spicata</i>	Herb	BG	5
Coleus माईनमुळ	<i>Coleus forskohlii</i>	Herb	BG	5
Basil राम तुळस	<i>Ocimum canum</i>	Herb	BG	5
Basil तुळस	<i>Ocimum Spp.</i>	Herb	BG	5
Basil लवंग तुळस	<i>Ocimum gratissimum</i>	Herb	BG	5
Basil सब्जा	<i>Ocimum basilicum</i>	Herb	BG	5
Basil कापूर तुळस	<i>Ocimum kilimandscharicum</i>	Herb	BG	5
Arjun Tree अर्जून	<i>Terminalia arjuna</i>	Tree	BG	1
Sage-leaved Alangium अंकोल	<i>Alangium salviifolium</i>	Tree	BG	1
Gum Guggul गुग्गुळ	<i>Commiphora wightii</i>	Tree	BG	2
Soapnut Tree रीठा	<i>Sapindus trifoliatus</i>	Tree	BG	1
Ehretia खंडूचव्हा	<i>Ehretia Laevis</i>	Shrub	BG	2

Total number of plants and trees are 267. Total number of species are 67 consists herbs, shrubs, climbers, small sized, midsized and big size trees.



## Annex-C

Bio-diversity in campus : Fauna

### List of birds seen at various places in the campus

English Name	Scientific Name	Marathi Name
House Sparrow	<i>Passer domesticus</i>	भारतीय चिमणी
Coppersmith Barbet	<i>Megalaima haemacephala</i>	तांबट
Indian Roller	<i>Coracias benghalensis</i>	चाष
Little Green Bee Eater	<i>Merops orientalis</i>	वेडा राघू
Asian Koel	<i>Eudynamys scolopaceus</i>	भारतीय कोकीळ
Lesser Coucal	<i>Centropus bengalensis</i>	भारद्वाज
Alexandrine Parakeet	<i>Psittacula eupatria</i>	करण पोपट
Rose Ringed Parakeet	<i>Psittacula krameri</i>	लाल मान्या पोपट
Yellow Legged Green Pigeon	<i>Treron phoenicoptera</i>	हरीयल
Barn Owl	<i>Tyto alba</i>	पिंजरा घुबड
Blue Rock Pigeon	<i>Columba livia</i>	राखी कबुतर
White Breasted Waterhen	<i>Amaurornis phoenicurus</i>	लाजरी पाणकोंबडी
House Crow	<i>Corvus splendens</i>	कावळा

### List of butterflies seen at various places in the campus

Common Tiger Butterfly	<i>Danaus chrysippus</i>	ढाण्या कडवा
Striped Tiger	<i>Danaus genutia</i>	पट्टेरी ढाण्या कडवा
Common Rose	<i>Pachliopta aristolochiae</i>	गुलाबी फुलपाखरू
Common Grass Yellow	<i>Eurema hecabe</i>	पिवळी गवत भिरभिरी
Common Mormon	<i>Papilio polytes</i>	मोरमोन

### List of other insects seen at various places in the campus

Common Mosquito	<i>Anopheles SPP.</i>	डास
Praying Mantis	<i>Mantis religiosa</i>	प्रार्थना कीटक

### List of other spiders seen at various places in the campus

Cyclosa Spp.	Trashline Spider
Gnaphosidae gnaphosidae	Ground Spider
Hersiliidae hersilis	Long-spinnered Bark SpiderL
Oxyopidae oxyopes	Striped Lynx Spider
Salticidae rhene	Jumping Spider
Pholcidae pholcus	Celler Spider

### List of other mammals seen at various places in the campus

<i>Rattus rattus</i>	House Rats
<i>Bandicota bengalensis</i>	Indian Mole Rat
<i>Funambulus palmarum</i>	3 Striped Palm Squirrel
<i>Felis catus</i>	The Spotted Cat
<i>Bandicota indica</i>	Greater Bandicoot Rat





## Annex-D

### List of green initiatives by Shri R.L.T. College

Save Paper Save Tree: Environment Cell organized an event to enroll students to minimize their use of paper to save trees from cutting.

Save energy, save electricity: The Environment Cell with NGO ' Srushti Vaibhav ' fixed stickers that remind everyone to conserve electricity.

No open Fire on campus: Any open fire is not permissible as per the Municipal Corporation. To protect the college campus from pollution caused by garbage burning, the Environment Cell, and NGO ' Srushti Vaibhav ' fixed posters to sensitize college staff and the community around.

The college has followed practice to issue a letter to all vendors and service providers to offer the best environmentally friendly products and services to the college in line with its Environmental Policy.

Environment Cell initiated ' No vehicle Day' and it is observed every last Sunday of the month. It spreads the message of protecting environment by reducing individual level carbon footprint, among the kith and kins of the college staff and students.

3 Day National Workshop: Disaster Management Preparedness was organized by the college.

NSS And NCC participants are actively involved in many conservation activities such as tree plantation activities in the adopted village Apoti Kurd (20°48'19.03" N 77°06'32.89" E)

NSS of Shri R.L.T. College of Science has organized the 'Sensitizing Sanitation' initiative by **MUNIJAN** (Mumbai University New Initiative for Joint Action Now) at Apatapa Khurd village.

To promote sustainable use of resources Shri R.L.T. College of Science has distributed Cotton Reusable Bags to adjacent citizens and also spread message to stop using single-use plastic carry bags. The poster was released by the college and was displayed at prominent places.

The cleaning drive was organized by the Environment Cell of the college and involved teaching, non-teaching staff and students to participate in it.

Shri R.L.T. College of Science has been selected to be a member in Maharashtra **Haritsena** i.e. Green Corps organized by the Social Forestry Division of **Government of Maharashtra**. The Green Corps organized GREEN INITIATIVES as per the guidelines set by the Government.

Environment Cell recycle used papers to make paper bags. The initiative helped in reducing the use of single-use plastic bags and also educated students to recycle waste generated at the college.

Old unused furniture was refurbished and brought into everyday use.

To manage waste generated by classrooms, the dustbins are kept outside the classroom and it made the safe waste disposal task easy.

New energy-efficient lights were installed where ever possible to reduce energy consumption.

Old electrical cables were replaced with new ones.



## Annex-E

### Recommendations

Internal Green & Environment Audit Committee surveyed and scrutinized the overall environmental performance and came out with the following recommendations:

- i) Recommendation is made to strengthen present internal and external sewage system ASAP.
- ii) The Internal Green and Environment Audit Committee recommends to installing an automatic water pump controller circuit to all the water pumps installed in the college campus to ensure that no water is wasted due to negligence.
- iii) To monitor and take measures in reducing daily consumption of electricity the committee recommends to designating a person who will control the proper use of all electrical gadgets on the campus. The college will give special privileges to report the misuse of electricity if any, in any department or campus area.
- iv) The Internal Green and Environment Audit Committee expects the college to maintain a record of several number of papers used by all departments in order to review its use and make efforts to reduce its consumption on year on year basis.
- v) The Internal Green and Environment Audit Committee recommends to initiating measures that may reduce pollutants on the campus. The Primary Air Quality Testing showed a slight increase in the TVOC range which itself suggests adding barriers in between the adjacent road and the campus. The committee recommends to consulting a subject specialist to bring down pollutant numbers to some extent.
- vi) The Internal Green and Environment Audit Committee recommends college focus on bringing down sound pollution and vehicular pollution by putting a sound barrier in between the adjacent road and the college classroom. The sound pressure levels detected inside classrooms in the college are slightly above prescribed limits. The committee recommends consulting subject specialists and reduces the noise coming from vehicles passing by the adjacent road.
- vii) The Internal Green and Environment Audit Committee appreciates the way Botanical Garden and trees are maintained, but the committee recommends adding more trees, shrubs in pots at every possible place on the campus. The binomial names are to be displayed to promote education for the students and the visitors of the college.
- viii) College must monitor and recycle old used, broken damaged glass, cans, white, colored, and brown paper, plastic bottles, batteries, print cartridges, cardboard, and furniture on a time to time basis.



## Annex-F

### Post Internal Green and Environment Audit Review Meeting

Internal Green & Environment Audit Committee review meeting was attended by all teaching and non-teaching staff. A detailed discussion was carried out and recommendations made by Internal Green and Environment Audit Committee were shared with everyone in the meeting. After the discussion it was decided to work on the recommendations provided by the committee.

## Annex-G

### Awards and recognition received by the college.



Akola, Maharashtra, India

MH SH 200, Jafrabad, Akola, Maharashtra 444003, India



25.71° C

NSS Team of Shri RLT College of Science doing plantation at gram panchayat office at adopted village



## Annex-H

Various environment protection initiative taken by the college.

**THE B. G. E. SOCIETY'S  
SHRI R. L. T. COLLEGE OF SCIENCE, AKOLA**

**N.S.S [ National Service Scheme]**  
**Organizes**

**Essay writing & poster competition for students**  
**(All students from BSc can join )**

**Topic - गंदगी मुक्त मेरा गाँव [ Dirt free my village]**  
**(Language for essay: Hindi/Marathi/English)**

**On Saturday 15th August 2020**  
**Submission deadline - 11 : a m 15 th August 2020**

**Principal –Dr. V. D. Nanoty**  
**coordinators :- Dr. R.P. Joshi –Sawalkar**  
**[ NSS Programme officer]**  
**Dr.S.L. Munde [ Programme officer]**  
**Mr.A. B. Khedkar [ Assistant professor]**

Essay competition and poster competition on Covid-19 Awareness of 8th To 12th Std And B.Sc. Students taken and the theme for the competitions was "Gandagi Mukta Mera Gaon".



Department of Microbiology in Collaboration with Nisarg-Katta planted summer flowering plants in College premises on 24th July 2020. Trees planted were Palash, Saptaparni and Bahawa etc.

# Annex-I

Various environment protection initiative taken by the college.

The Berar General Education Society's  
Shri R. L. T. College of Science, Akola  
U.G.C. Women's Hostel

## Biogas from Kitchen and Food Waste

**Goal:** The aim of the college is to solve the problem of waste disposal from kitchen and dining of girl's hostel as well as garbage of college campus and to generate energy from waste.

**Importance:** A biodegradable waste fed biogas plant in college campus is a best and ecofriendly technology for the treatment of kitchen and dining waste. It also becomes an effective tool to serve the fuel supply needs of the hostel.

**WHAT IS BIOGAS?**

- Biogas is a clean environment friendly fuel.
- Biogas is the gas produced by the breakdown of organic waste by bacteria without oxygen (anaerobic digestion or fermentation). It is the ultimate waste product of the bacteria feeding of the input biodegradable feedstock (methanogenesis stage of anaerobic digestion performed by methanogens).
- Biogas generally comprise of 55-65 % methane, 35-45 % carbon dioxide, 0.5-1.0% hydrogen sulfide and traces of water vapour.

**INTRODUCTION**

- In the first step the fermentative bacteria e.g. *Bacteroides succinogenes* break down complicated molecules into monomers.
- In the second stage, acetogenic bacteria e.g. *Aerivibrio* sp. decompose the remaining complex organic molecules into acetic acid.
- When acetic acid has been produced in sufficient quantities, methanogenic bacteria convert it into methane. This last step is called methane production or methanogenesis.
- The decomposed carbon is converted almost completely into methane.
- End product of fermentation is the combustible biogas.

**1. Hydrolysis**      **2. Fermentation**      **3. Acetogenesis**      **4. Methanogenesis**

Proteins, Carbohydrates, Fats      Sugars, Amino Acids, Fatty Acids      Acetic Acid      Biogas (CH<sub>4</sub>, CO<sub>2</sub>)

Component	Concentration
Methane	50-75 Vol.-%
Carbon dioxide	25-45 Vol.-%
Water vapour	2-7 Vol.-%
Oxygen	<3 Vol.-%
Nitrogen	≈ 2 Vol.-%
Ammonia	<1 Vol.-%
Hydrogen	<1 Vol.-%
Sulfide	20-20,000 ppm

**COMPOSITION (for 1000 liters)**

PRIMARY COMPOSITION:	SECONDARY COMPOSITION:
<ul style="list-style-type: none"> <li>Water: 950 liters</li> <li>Cow dung: 30kg (approx.)</li> <li>Slurry from working biogas plant: 50 liters</li> </ul>	<b>DAILY WASTE REQUIREMENT:</b> <ul style="list-style-type: none"> <li>2.5 kg 3.0 kg Food waste (approx.)</li> <li>+5-6 liters water (approx.) in slurry form.</li> <li>After adding food waste slurry add water 5 times more.</li> </ul>

**ADVANTAGES OF BIOGAS**

- Reducing water and air pollution
- Forest protection
- Saving cooking time
- Improving rural standard of living
- Electricity production
- Production of high quality fertilisers
- Improving hygienic conditions
- Saving money

**Other Applications of BIOGAS in various fields**

- Mushroom cultivation
- Poultry
- Fish culture

Sandeep Ashok Toshniwal

The practice is under the microbiology department and started for the girls Hostel in the premises. The kitchen waste and Canteen waste, remaining food, perished food products are used in the biogas plant. The energy generated is used in the girls hostel.

## ORGANIC-COMPOSTING

Best Waste

Improves soil Structure  
Improves Drainage  
Reduce Soil Erosion  
Improves Soil Fertility  
Improves Water Holding Cap.  
Reduces Pests & Diseases on plants

Project By :-Department of Microbiology

**VERMI COMPOSTING**

Shri. R. L. T. College of Science

Vermi- Composting Practice is done in the premises since few years. The waste and left-over plant garbage, nirmalya in Ganesha Festival, and all the dry waste as well wet waste is used for composting.

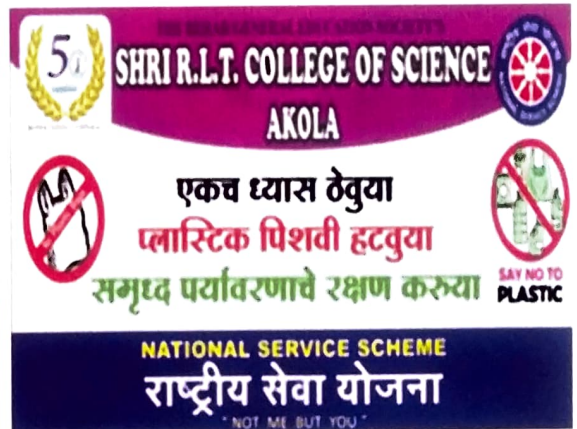


## Annex -J

Various environment protection initiative taken by the college.



Cleanliness drive is organized every year jointly with Akola Municipal Corporation on the eve of Mahatma Gandhi Jayanti.



Solar Panels & Lights on Lamp-posts in campus.



# Annex-K

Licence for possessions of certain chemicals.

आजि (अधिकारी) को कोला आता १०  
दि ६/११/२००० र्या मान्यतेने सदर  
अनुसंधान-चा.६० (अ) क्रि. करण  
१०० लिटर (अंश) क्रि.चा कश्चयत  
आता आहे.



FORM R. 8. II.  
[Rule 5 (1) (b)]

Licence No. 10566

Licence for the possession and use of rectified spirit including absolute alcohol for industrial medicinal, scientific and educational purposes.

Licence is hereby granted, under and subject to the provisions of the Bombay Prohibition Act, 1949 (Bom. XXV of 1949), and the rules, regulations and orders made thereunder, to Principal, Keshavnagar Laxminarayan Tasmal College of Science, Akola (hereinafter called "the licensee") on payment of a fee of Rs. 11,000/- in advance, authorising him to buy, possess and use rectified spirit including absolute alcohol (hereinafter called "spirit") during the period from 1-1-1955 to 31-3-1956, at his premises situated at Akole (hereinafter referred to as "the licensed premises"), subject to the following conditions, namely:—

Conditions.

- The licensee shall not use the spirit for any purpose except for Educational
- (1) The licensee shall not buy spirit except on a requisition countersigned by an Officer of the Prohibition and Excise Department duly authorised in that behalf.  
(2) The licensee shall not buy spirit in any one month exceeding 60 (Sixty) litres of Rectified Spirit & Absolute Alcohol in the aggregate.
- The licensee shall not have in his possession more than 60 (Sixty) litres of Absolute Alcohol at any one time.
- The licensee shall keep all the spirit received by him in a place in the licensed premises approved by the local Inspector of Prohibition and Excise under lock and key and all issues of spirit from the said place shall be made in the presence of the licensee or a person duly authorised by him in writing in that behalf.
- (1) The licensee shall maintain such accounts as may be prescribed by the Director of Excise and Prohibition under the Act. The account shall be kept in a bound book, paged and stamped with the seal of the Collector.  
(2) The licensee shall keep, along with the account book, the requisitions and transport passes relating to the spirit received at the licensed premises.  
(3) The licensee shall submit such returns as may be prescribed by the Director of Excise and Prohibition under the Act.  
(4) The licensee shall furnish to the Collector such other information relating to the subject matter of this licence as the Collector may from time to time require.
- The licensee shall pay to Government such cost of the Prohibition and Excise staff if it is appointed of Excise and Prohibition for supervision over the use of rectified spirit, as may be fixed by the Director.
- The licensed premises, the spirit kept therein and the account books, requisition and transport passes referred to in condition 5 and this licence shall at all times be open to inspection by the Collector, or any Prohibition and Excise or Police Officer not lower in rank than a Sub-Inspector of Prohibition and Excise or Police, as the case may be, or by any other officer empowered under section 37 (a) of the Bombay Prohibition Act, 1949, who may be deputed or authorised by the Collector or the Superintendent of Prohibition and Excise in this behalf.
- The accounts, requisitions and transport passes referred to in condition 5 and the licence shall be preserved by the licensee during the whole of the period of this licence.

Granted this ..... day of ..... 1955



Collector of .....

\* The purpose for which the spirit is to be used should be clearly stated here. In the case of use for industrial purposes the specific industrial purpose should be mentioned.



# Annex-K

Licence for possessions of certain chemicals.

अनुज्ञापती क्र. 79/2019-20 म. वि. प्र. म. प्र.  
 मुतनीकरण शुल्क रु. 400/- - ईचलन क्र. MHE/398/2019  
 दिनांक 9.8.2019 नुसार वसूल करून पूर्वीच्याच  
 शर्तीवर या अनुज्ञापतीचे दि. 01/04/2019 ते  
 दि. 31/03/2020 पर्यंत मुतनीकरण करण्यांत येत आहे.  
 दि..... जिल्हाधिकारी, अकोला  
 करिता



अनुज्ञापती क्र. 11/2020-21 म. वि. प्र. म. प्र.  
 मुतनीकरण शुल्क रु. 400/- - ईचलन क्र. MHE/45528/2019  
 दिनांक 16.3.2020 नुसार वसूल करून पूर्वीच्याच  
 शर्तीवर या अनुज्ञापतीचे दि. 01/04/2020 ते  
 दि. 31/03/2021 पर्यंत मुतनीकरण करण्यांत येत आहे.  
 दि..... जिल्हाधिकारी, अकोला  
 करिता

अनुज्ञापती क्र. 11/2021-22 म. वि. प्र. म. प्र.  
 मुतनीकरण शुल्क रु. 425/- - ईचलन क्र. 12836201  
 दिनांक 24/03/2021 नुसार वसूल करून पूर्वीच्याच  
 शर्तीवर या अनुज्ञापतीचे दि. 01/04/2021 ते  
 दि. 31/03/2022 पर्यंत मुतनीकरण करण्यांत येत आहे.  
 दि..... जिल्हाधिकारी, अकोला  
 करिता

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# Annex-L

## Sound Pressure Level Testing Report

### Sound Pressure Level Testing

Sound waves are vibrations of air molecules carried from a noise source to the ear. Sound is typically described in terms of the loudness (amplitude) and the pitch (frequency) of the wave. Loudness (also called sound pressure level, or SPL) is measured in logarithmic units called decibels (dB). The normal human ear can detect sounds that range between 0 dB (hearing threshold) and about 140 dB, with sounds between 120dB and 140 dB causing pain (pain threshold). The ambient SPL in a library is about 35 dB, while that inside a moving bus or subway train is roughly 85 dB; building construction activities can generate SPLs as high as 105 dB at the source. SPLs decrease with distance from the source.

#### Standards of sound:

To control the generation of noise by various sources in the environment, the **Central Pollution Control Board**, under the **Ministry of Environment and Forests, Government of India**, has set standards of sound for different categories of areas (residential, commercial, industrial and silence zones), separately for day-time and at night [Table 1].

Category of Area/Zone	Limits in dB(A)	
	Day Time	Night Time
Industrial Area	75	70
Commercial Area	65	55
Residential Area	55	45
Silence Zone	50	40

09/08/20

Date	Location	Remarks	dB(A)	Date	Location	Remarks	dB(A)
2.18.18	PR CABIN		62	3.23.50	ROAD ADJ		75
2.33.00	GARDEN		67				
2.41.57	PHYSICS LAB		64				
2.49.56	BOTANY LAB		68				
2.56.16	ZOOLOGY LAB		57				
3.04.52	CH LAB		74				
3.13.54	CLASS R-4	MORE THAN PRESCRIBED LIMIT	68				

Reducing noise pollution can be achieved through regulation, improved building methods, better product design, noise barriers and better planning. Growing populations, urbanization and modern technologies all contribute to increased noise pollution. It may sound extreme, but it qualifies as a practical way to reduce noise pollution. Noise is produced by strong sound waves or vibrations, which can be significantly reduced by barriers. By installing a live fence, you'll be creating a barrier that absorbs the strong sound waves or vibrations, thereby reducing noise pollution around your office or institution. Vegetation reduces noise pollution through a phenomenon called sound attenuation, which is the reduction of sound intensity. Leaves, twigs, and branches on trees, shrubs absorb and deflect sound energy. Declare a "No Horn Zone" in Hospital, Educational institutes, and Residential Areas : Horns from trucks, buses, and cars produce a considerable degree of noise pollution and as such, the introduction of no horn zone can help reduce noise pollution. Governing and city authorities hold the power to introduce policies that can help reduce noise pollution. The laws should limit the amount of noise in public and private places to cut noise pollution. Do regular checking of noise levels: Keeping the noise level within the limit requires frequent verification of noise level. Therefore see to it that regular checking of noise level is done.

The human ear distorts its sensitivity to lower and higher frequency sounds. Sound meters try to mimic this process by weighting the readings. This scale is known as the **A scale** and readings taken using this scale will be denoted as **dB(A)**.



#### The World Health Organization (WHO)

World Health Organization suggests that the optimal sound level in a classroom should be at or below 35 dB. Noise pollution is an invisible danger. The most common health problem it causes is Noise Induced Hearing Loss (NIHL). Exposure to loud noise can also cause high blood pressure, heart disease, sleep disturbances, and stress. The Central Pollution Control Board (CPCB) has proposed a new set of fines between Rs 1,000 and Rs 1 lakh for those who violate norms restricting noise pollution under the Noise Pollution (Regulation and Control) Rules, 2000.

Name of the institute: SHRI RLT COLLEGE OF SCIENCE  
 Place: AKOLA  
 Date: 09/08/20  
 Seal:

Department of Botany  
 R.L.T. College of Science  
 AKOLA  
 Head  
 Department of Forest Education  
 R.L.T. College of Science  
 AKOLA



Numerous health studies have linked adverse health effects with spending significant amounts of time near high-traffic roads with elevated air pollution levels of particulate matter, gaseous pollutants, air toxins and noise emitted by nearby automobile vehicle activity. EFEC (Environment & Forest Education Center) has noted & studied the vehicular pollution on the road adjacent to the college campus. To find out real numbers EFEC recorded air and noise pollution level inside the campus. The major air & noise pollution caused is due to vehicular noise & air pollution from the road passing just outside the college campus. Every day more than 2k vehicles pass by the college boundary and all the air & noise pollution is scattered/dispersed in and around it naturally. The college campus is bombarded with irritating sounds of Honking. Relentless horn use is a major source of noise pollution. More than a nuisance, it is a health hazard to everyone in the vicinity. When the noise level in classrooms of college was recorded, the results were the same as guessed. It showed higher decibels (71 dB(A) by using noise dosimeters and it is surely a matter of concern for everyone to find the remedy to this issue. Few steps are suggested to reduce the adverse effect of air & noise pollution. Being eco-friendly in the environment, I always suggest remedies that are easy to process and need very little infrastructure. I rely on trees more than man made furniture. Remedy: Plant the noise buffer close to the noise source i.e. road adjacent to passing by heavy traffic road. Plant trees/shrubs as close together as the species will allow. I suggest using plants with dense foliage. A diverse tree species, with a range of foliage shapes and sizes within the noise buffer, may also improve noise reduction. Evergreen varieties that retain their leaves will give better year-round protection. The suggested site for planting trees does not permit growing after a certain height due to electrical lines passing by the same perimeter wall of the campus. The suggested design conditions include height, thickness, coverage, porosity/density, and species characteristics that may reduce noise pollution and at the same time promote improved air quality. Trees planted at the outskirts of the campus add the aesthetic view of the campus in the city.

Sound deflection by plants: When sound waves hit the massive tree trunks, the trunks do not vibrate because they are rigid. Sound waves are reflected off the trunk and back toward the source. When sound hits a flexible surface like leaves, leaves will vibrate, sound waves are transformed into other energy forms. It can also change the phase of a sound, which can cause interference in sound waves and noise reduction.

Acoustic louvers can help reduce amount of noise entering classrooms.

Sucking in carbon dioxide and replacing it with oxygen is not the only contributor of plants. Many tree species are savoury in a polluted city, clearing the air of harmful sulphur dioxide, carbon monoxide and particulate matter.

The walls are bombarded with noise and vibrations. These are experienced inside the college campus. By creating a vegetative barrier the air & noise pollution can be controlled to a great extent.

Proposed trees for creating a barrier for air & noise pollution must not grow till the height of electrical line. The trees are to be selected as per sight specific requirements.

The trees selected for abatement of noise & air pollution:

- Outdoor:**
01. Tecoma stans,
  02. Nycatanthes arbor-tristis
  03. Thespesia populnea
  04. Cascabela thevetia
  05. Sapindus mukarossi
  06. Cordia alliodora
  07. Cordia sebestena
  08. Bauhinia racemosa
  09. Putranjiva roxburghii
  10. Dalbergia sissoo
  11. Anthocephalus cadamba
  12. Mimosa opulenta
  13. Milletia pinnata
  14. Moringa olifera
  15. Hibiscus rosa-sinensis
  16. Gardenia jasminoides
  17. Quisqualis indica
  18. Bauhinia variegata
  19. Murraya koenigii
  20. Kigelia pinnata
  21. Thespesia populnea
  22. Nerium indicum
  23. Jacquemontia pentanthes (for wall)



**Indoor / In shade**

1. Ocimum sanctum
2. Ficus benjamina
3. Dypsis lutescens
4. Cordyline Terminalis
5. Euphorbia pulcherrima
6. Dracaena trifasciata

Indoor plants reduce VOCs (volatile organic compounds) and are an easy and inexpensive way to improve our indoor environments. Plants offer multiple benefits. They purify our air by reducing various pollutants and reducing carbon dioxide levels. Dracaena and many other indoor plants are the most effective houseplants in air purification. It helps remove formaldehyde, benzene, trichloroethylene and carbon dioxide.



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# Annex-L

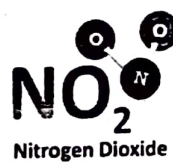
## Remedy to reduce sound and vehicular pollution.



# Annex-M

## Primary Air Quality Testing Report

### Primary Air Quality Testing



Time/In or Out	PM 2.5	PM1	PM10	TVOC	CH2O	Humidity
PR. CABIN 2.18.18	31	41	19	0.702	0.223	63%
GARDEN 2.33.00	18	22	10	0.004	0.000	60%
PHYSICS LAB 02.41.57	17	22	10	0.013	0.000	56%
BOTANY LAB 2.49.56	20	26	12	0.312	0.000	57%
ZOOLOGY LAB 2.56.16	18	22	10	0.013	0.000	54%
CHEMISTRY LAB 3.04.52	20	25	11	0.104	0.000	54%
CLASSROOM NO4 3.13.54	19	25	12	0.117	0.000	55%

Air Quality Grade	PM 2.5 Average Value (ug/m <sup>3</sup> )
Excellent	0-35
Good	35-75
Slight Pollution	75-115
Moderate Pollution	115-150
Severe Pollution	150-250
Serious Pollution	> 500

TVOCs: Total Volatile Organic Compounds (TVOCs) are a group of compounds with high vapor pressure and low water solubility. In other words, these substances won't easily bind to themselves (volatile) or dissolve in water (organic). Inside your home or in an institution, volatile organic compounds are harmful, carcinogenic air pollutants that evaporate at normal indoor atmospheric conditions. TVOCs affect your sense of wellbeing. Some VOC's are even bad for health.

CH2O: Formaldehyde is a colorless poisonous gas synthesized by the oxidation of methanol and used as an antiseptic, disinfectant, histologic fixative, and general-purpose chemical reagent for laboratory applications. Formaldehyde is readily soluble in water and is commonly distributed as a 37% solution in water; formalin, a 10% solution of formaldehyde in water, is used as a disinfectant and to preserve biological specimens. Environmentally, formaldehyde may be found in the atmosphere, smoke from fires, automobile exhaust and cigarette smoke. Small amounts are produced during normal metabolic processes in most organisms, including humans.

Particulate Matter measurement with laser scattering method. Particulate matter is a mixture of liquid droplets and solid particles found in the atmosphere. The particle sizes are classified by size for the purpose of measurement, emission control, effects, and mitigation strategies. Historically, particles with diameters less than 10 microns (PM-10) have been the major concern, because they can easily pass into the lung. However more recently scientist have labeled particle sizes measuring 2.5 micron (PM-2.5) in diameter and smaller as the most damaging to human health because they penetrate and remain in the deepest passages of the lungs. Particulate matter contains toxic chemicals, some of which are known to cause cancer. They can irritate the respiratory system, accumulate in the lungs to cause silicosis, asbestosis, and aggravate conditions such as asthma and other respiratory disease. PM-10 also interferes with plant photosynthesis. The main sources of PM-10 include carbon used in industrial and domestic combustion gasoline, diesel, industrial processes, and fires, and includes dust, soot, metallic particles, cement, pollen, and organic compounds. The Indian NAAQS for PM-2.5 is 40 ug/m<sup>3</sup>

Humidity: Most people find that a relative humidity between 30 to 60 percent is the most comfortable, with indoor humidity ideally between 30 to 50 percent. Low levels of humidity lead to very dry air which increases the prospect of catching airborne viruses like the flu, possibly due to both their ability to survive longer in dry cool conditions and irritated nasal passages making it easier to catch them. Eczema can be exacerbated and dry skin can also be uncomfortable. Higher humidity in the home creates an environment for two of the most common and undesirable triggers for asthma and allergy - dust mites and mold.

Name of the institute: SHRI RLT COLLEGE OF SCIENCE, AKOLA  
 Place: SHRI AKOLA  
 Date: 09.08.20  
 Seal:





## Conclusion:

Internal Green & Environment Audit was conducted by an Internal Green & Environment Audit Committee i.e. IGEAC. The committee consisted of teaching, non-teaching staff, and external subject specialist members. It started in the month of August 2019 with the organising Pre Audit Training Workshop. The workshop gave clear directives and directions to all members. Subject specialists offered a complete set of directives about data collection and the importance of the Questionnaire. The questionnaire was provided to the committee and data collection started in September 2019. The necessary information and crucial data collection were completed and a draft report was complete in April 2020. The review meeting was organized in May 2020. The special meeting was called upon in June 2020 to approve, accept, and release Internal Green & Environment Audit Report for the year 2019-2020.

A conclusion can be made from the Internal Green & Environment Audit Report for the year 2019-2020 that the environment in the R.L.T. College of Science is healthy. The committee has made short-term and long-term recommendations to take environmental protection and its management practices to higher levels.

Internal Green & Environment Audit Report for the year 2019-2020 will become an effective tool for all the future Internal Green & Environment Audit Reports. The procedures, processes, and practices followed in the report-making will surely evolve every year. The Internal Green & Environment Audit committee will strive hard to make audit reports more informative and useful. Internal Green & Environment Audit Committee thanks each & everyone involved directly and indirectly in making this Internal Green & Environment Audit Report.

B. G. E. Society's



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## INTERNAL GREEN & ENVIRONMENT AUDIT REPORT