



CSIBER Trusts

**CHHATRAPATI SHAHU INSTITUTE OF BUSINESS EDUCATION  
AND RESEARCH (CSIBER), KOLHAPUR.**

An Autonomous Institute under UGC, New Delhi and Shivaji University,  
College with Potential for Excellence (CPE) III<sup>rd</sup> Phase  
Reaccredited by NAAC with 'A' Grade (CGPA 3.55)

**CERTIFICATE**

This is to certify that, the Green Initiative Report ( Green Audit, Energy Audit and Environment Audit) of Radhanagari Mahavidyalaya, Radhanagari has been prepared and certified by the Department of Environment Management based on the documents produced by the Mahavidyalaya.

Prepared by :

**Dr. V. B. Patil**  
(Associate Professor)

**Ms. Rasiya Padalkar**  
(Assistant Professor)

**Date: 12/04/2021**

**Place: Kolhapur**



Certified by :

**Er. D. S. Mali**  
Head  
Dept. of Env't. Mgt.

Address: University Road, Kolhapur, 416004.

Website: [www.siberindia.edu.in](http://www.siberindia.edu.in) email: [director@siberindia.edu.in](mailto:director@siberindia.edu.in)

Contact: 0231-2535706/2535707



SHRI RADHANAGARI TALUKA SHIKSHAN PRASARAK MANDAL'S  
**RADHANAGARI MAHAVIDYALAYA, RADHANAGARI**  
AFFILIATED TO SHIVAJI UNIVERSITY, KOLHAPUR (MAHARASHTRA, INDIA)

# **GREEN INITIATIVE REPORT**

## **(2015-2020)**



**Prepared and Certified By**

**Department of Environment Management**

**CHHATRAPATI SHAHU INSTITUTE OF BUSINESS  
EDUCATION AND RESEARCH (CSIBER),**

**[AN AUTONOMOUS INSTITUTE]**

NAAC Accredited A<sup>+</sup> III Cycle



Shivaji University Road, Kolhapur – 416 004 ( India )

Phone : 0231- 2535706/07

E. mail : [director@siberindia.edu.in](mailto:director@siberindia.edu.in)

Website: [www.siberindia.edu.in](http://www.siberindia.edu.in)

2021

# **GREEN INITIATIVE REPORT**

**(ENVIRONMENT AUDIT, ENERGY AUDIT AND GREEN AUDIT)**

**OF**

**SHRI RADHANAGARI TALUKA SHIKSHAN PRASARAK MANDAL'S**

**RADHANAGARI MAHAVIDYALAYA, RADHANAGARI**

**(Affiliated to Shivaji University, Kolhapur)**



**Certified by**

**Er. D. S. Mali**

**Head,**

**DEPARTMENT OF ENVIRONMENT MANAGEMENT**

**CSIBER, KOLHAPUR**



## **Audit Team**

**Dr. V. B. Patil**  
Associate Professor

**Prof. Ms. R. C. Padalkar**  
Assistant Professor

**Dr. P. M. Patil**  
Assistant Professor

## **Technical Team**

**Mr. S. S. Gaddi Mr. R. B. Hunashal Mr. V. B. Kadam**

## **Assistance**

**Mr. S. S. Bankar Mr. G. L. Magdum**

**2015-20**

## CONTENTS

Chapter No.	Name of the chapter	Page No.
1.	<b>Introduction</b> 1.1. About College 1.2. Vision of the College 1.3. Mission of the College 1.4. Goals and Objectives of the College 1.5. Environmental Policy 1.6. Motto of the College 1.7. Logo of the College/ Institute	1
2.	<b>Green Audit</b> 2.1. Conceptual Framework 2.2. Objectives of Green Audit 2.3. Implementation of the Environmental Policy 2.4. Environment Awareness Activities 2.5. Environment Awareness Initiatives on the Campus	6
3.	<b>Environmental Aspects of the Radhanagari Mahavidyalaya Radhanagari</b> 3.1 Energy Audit 3.1.1 Energy Consumption 3.1.2 Energy Conservation 3.2 Water Audit 3.2.1 Water Consumption 3.2.2 Water Quality 3.2.3 Water Conservation 3.2.3.1 Efficient use of water 3.2.3.2 Rain water Harvesting 3.3 Air and Noise Quality 3.4 Green Cover 3.5 Solid Waste Management 3.5.1 Biodegradable waste 3.5.2 Paper waste 3.5.3 Other waste	15
4.	<b>Best Environmental Practices</b> 4.1. No Vehicle Day 4.2. Ganesh Moorti and Nirmalya Daan 4.3. Plantation	28
5.	<b>Finding and Suggestions</b> 5.1 Findings 5.2 Suggestions	30
	<b>Annexures- I, II, III, IV</b>	31,32,33,34



**CHAPTER-1 : INTRODUCTION****1.1 About College:**

Shri Radhanagari Taluka Shikshan Prasarak Mandal, Radhanagari founded its senior college, Radhanagari Mahavidyalaya, Radhanagari on 26 August 1991. The college is affiliated to Shivaji University, Kolhapur. It is a co-aid college. It offers the under-graduate programmes namely Bachelor of Arts and Bachelor of Commerce.

For B. A. programme, five different electives are available to students:

- B. A. (Economics)
- B. A. (English)
- B. A. Hindi
- B. A. History and
- B. A. (Marathi)

For B. Com there are two electives:

- B. Com. (Auditing and Accounting)
- B. Com. (Industrial Management).

The college received the Permanent Affiliation of Shivaji University, Kolhapur on 21 June 2005 and the UGC 2(f) and 12 (B) recognition in September 2008.

The college has always focused on co-curricular activities along with academic programmes. Students and faculty members participated in various social and environmental awareness programmes like Tree plantation, No Vehicle Day, Statue Cleanliness Activities, Swachhta Bharat Abhiyan Activities and other cultural activities.

**Table No.1: Students enrollment for B.A. and B.Com. courses**

Sr. No.	Academic Year	No. of Students Enrolled
1	2015-16	469
2	2016-17	469
3	2017-18	451
4	2018-19	387
5	2019-20	414
6	2020-21	385

**Table No.2: Teaching/Non-teaching Staff Details**

<b>Sr. No.</b>	<b>Name</b>	<b>Designation</b>
1.	Dr. D. S. Moruskar	Principal
2.	Dr. V. D. Dhere	Associate Professor
3.	Mr. B. K. Patil	Associate Professor
4.	Mr. K. M. Kumbhar	Librarian
5.	Dr. N. A. Jarandikar	Associate Professor
6.	Dr. V. S. Patil	Assistant Professor
7.	Dr. E. S. Patil	Assistant Professor
8.	Mr. S. R. Sawant	Assistant Professor
9.	Mr. A. M. Kamble	Assistant Professor
10.	Mr. K. Y. Ekal	Assistant Professor
11.	Mr. P. A. Mokashi	Assistant Professor
12.	Mr. R. K. Patil	Head Clerk
13.	Mr. D. B. Suryavanshi	Senior Clerk
14.	Mr. M. G. Kamble	Library Attendant
14.	Mr. Newade N. S.	Peon
15.	Mr. A. P. Kamble	Peon
16.	Mr. A. B. Chogale	Peon

**About Radhanagari:**

Radhanagari is a town and headquarter of Radhanagari Tehsil in the Radhanagari sub division of Kolhapur district in Maharashtra. His Highness Rajarshi Shahu Maharaja (26 June 1874 – 6 May 1922), the visionary king of the Kolhapur Princely State founded the village Radhanagari. Looking at the concept of water reservoirs in Europe, Rajarshi Shahu was very much impressed and decided to construct such kind of reservoir in his kingdom for the purpose of irrigation and domestic use. The existing site of the reservoir was shown to the architect of modern India, Sir Moukshagundam Vishweshrayya, who finalised the location and drafted the plan.

The reservoir, named after the mother of Rajarshi Shahu Maharaja as Laxmi Dam, is even today supposed to be a boon for the western Maharashtra. Rehabilitation of the families coming under the reservoir zone was a serious problem and which was resolved by establishing a new village, the present day Radhanagari, named after the daughter of Rajarshi Shahu. For the workers, technicians who came for the construction of Laxmi reservoir, and for the nearby villages, Radhanagari emerged as a prominent market place. Being located in dense forest area, Radhanagari was Rajarshi Shahu's favourite destination for hunting. Rajarshi Shahu's famous

barehanded fight with a bear took place in the same forest. In 1958, the adjoining region of Radhanagari declared as the Dajipur Wild Life Sanctuary, popularly known as the “Bison Sanctuary”. Later on the Dajipur Wild Life Sanctuary was expanded in 1985, and today it is known as the Radhanagari Wild Life Sanctuary. The present day Radhanagari Tehsil comes under the reserve forest zone. Radhanagari region has been declared by the Ministry of Environment, Forest and Climate Change, Government of India as Eco Sensitive Zone (ESZ). Very recently, the World Heritage Convention which comes under the aegis of UNESCO has declared Radhanagari Wild Life Sanctuary as the World Heritage Site.

The main aim of the college is to impart sound learning to the students from rural hilly places of Radhanagari Taluka for their all-round development. The College encourages rural students to aspire for an excellence not only in academic but also in every aspect of human life, for the betterment of their and their family lives and society at large. The various co-curricular activities of the college especially the extension programmes organized by NCC and NSS departments provide scope and support for students inculcating social and environmental awareness.

### **1.2 Vision of the College:**

To make the students competent, self-reliant and responsible citizens of India.

### **1.3 Mission of the College:**

- To make students responsible students.
- To enhance the socio-economic status of the surrounding vicinity.
- To make the students aware about the social evils.
- To provide the equal opportunities to the weaker sections of the society.

### **1.4 Goals and Objectives of the College:**

- To make the students socially responsible citizens through the activities like NSS, Youth Festival and Cultural Programmes.
- To improve the leadership qualities of the student community through various activities.
- To inculcate the computer literacy among the students.
- To enhance the personality development of the students through various activities.
- To introduce the need based courses to make the students self-reliant.
- To provide the various job opportunities to the students through placement cell.
- To guide the students through professional expertise.

- To eradicate the social evils like dowry, child-marriage, superstitions, etc. through the activities like rally, speeches, street plays, etc.
- To enable the students to fight against the social evils.
- To bring the educationally deprived class into the main stream of the higher education.
- To provide an opportunity of higher education to women and the weaker sections of society.

### **1.5 Environmental Policy:**

*Radhanagari Mahavidyala, Radhanagari is committed to achieve a sustainable development goals set forth by directive principles of Indian Constitution for improving social, economic and environmental well being of the rural society with the conservation of biodiversity through sustainable approach in forest management. Mahavidyalaya is dedicated to environmental developments that foster a sustainable future for people living in vicinity of Radhanagari Reserve Forest providing need based courses for the self reliance and job opportunities to students providing compliance with relevant environmental laws and regulations.*

### **1.6 Motto of the Radhanagari Mahavidyalaya Radhanagari:**

**"विद्या हेच धन"/ "Knowledge is Wealth"**

### **1.7 Logo of the Radhanagari Mahavidyalaya, Radhanagari:**



**The logo of the Mahavidyalaya shows its obeisance to His Highness Rajarshi Shahu Maharaja, the visionary king of the then Kolhapur Princely State who worked all through his life for the upliftment of the underprivileged and the downtrodden strata of society.**

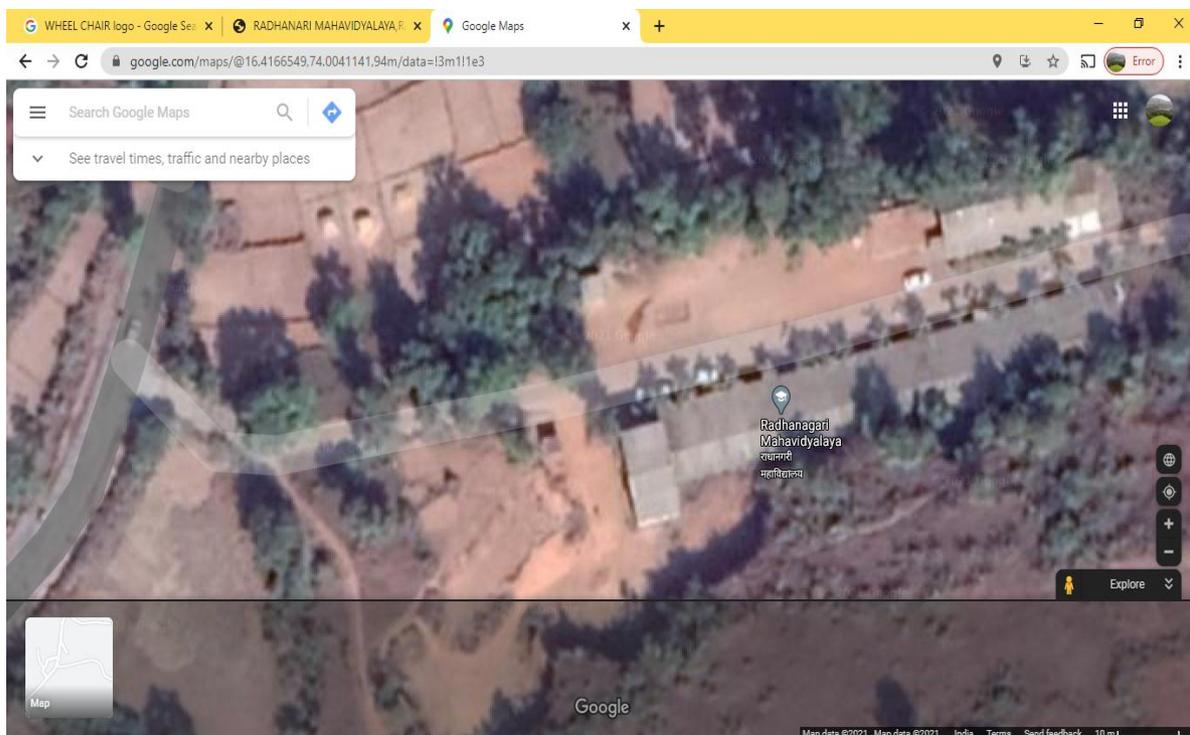
**Table No. 3 Name and Address of the Institution:**

Name	RADHANAGARI MAHAVIDYALAYA, RADHANAGRI
Address	At Post: Radhanagari Tal. Radhanagari Dist. Kolhapur PIN: 416 212 MAHARASHTRA
City	: Radhanagari
Website	: <a href="http://www.radhanagaricollege.ac.in">http://www.radhanagaricollege.ac.in</a>

**Location:**

Location	Rural
Campus area	1.61.06 hectare
Built up area in sq. mts.	1756.80

**Coordinates:** 16<sup>0</sup> 25` 00`` N 74<sup>0</sup> 00` 16.2``E



**Plate No.01: The Google Earth Image of the Radhanagari Mahavidyalaya Radhanagari**

## CHAPTER-2: GREEN AUDIT

### 2.1 Conceptual Framework:

Educational Institutes/Colleges are playing a key role in development of human resources worldwide. Higher education institutes run various activities with aim to percolate the knowledge along with practical dimension among the society. Likewise, higher education institutes/colleges are also try to give different technological solution for issues related to environment. Different types of evolutionary methods are used to assess the problem concerning environment. It includes Environmental Impact Assessment (EIA), Social Impact Assessment (SIA), Carbon Footprint Mapping, Green audit, etc.

“Green audit is a tool to assess general practices implemented by organization in term of its impact on environment”. Green audit also throws a light on adverse practices which are responsible for degradation of environment. Green audit shows strength and weakness of organization towards conservation of environment. It also pinpoints the disturbing practices of natural resources utilization. It shows the path to build, implement and test new innovative system for better utilization of resource and minimization of waste generation. It helps to achieve the goal of college to become a role model in higher education of sustainable campus in social, economical and environmental views. Green audits are useful to ensure that their environmental performance is in compliance with applicable laws and regulations, to identify potential liabilities, to align with environmental performance with their stated goals and strategy, to identify opportunities to reduce costs or increase revenue, to improve process and materials efficiency, and in response to stakeholder’s requests for increased disclosure.

Environmental audits are the tools that organizations use to identify their full range of environmental aspects and impacts. It also serves as a means to identify opportunities to save money, enhance work quality, improve employee health and safety, reduce liabilities, and achieve other forms of business value.

Recently, increased attention has been paid towards environmental auditing by companies, government agencies and academic organizations. The recent growth of environmental auditing fits with a variety of business and social trends.

In keeping with the need of the National interest of Swachta and Swastha Bharat, Radhanagari Mahavidyalya, Radhanagari is well aware about environmental issues and has gone through its environmental audit for better understanding of environmental aspects and impacts of the activities carried out in the Mahavidyalaya on the environment.

## 2.2 Objectives of Green Audit:

- To implement 'Go green' policy in the campus.
- To identify opportunities to save energy.
- To see that proper steps have been taken to control or to prevent adverse effects of Air, Water, Noise and Solid Waste pollution on environment.
- To reduce waste and dispose waste scientifically.
- To see that proper steps have been taken for maintaining health and welfare of the students and staff of the Radhanagari Mahavidyalaya, Radhanagari .

## 2.3 Implementation of the Environmental Policy:

The college has established a “Green Campus” committee to look into environmental awareness and protection in furtherance of fulfilling environmental goals and sustainable development goals set forth to implement environmental policies given by government from time to time. NSS and NCC students are frontiers for implementing the environmental policy along with other students.

## 2.4 Environment Awareness Activities:

### • Construction of Vanarai Bandhara

To make people aware about water conservation measures every year students and staff of Radhanagari Mahavidyalaya construct Vanarai Bandhara on water streams.



**Plate No. 02: Construction of Vanarai Bandhara**

- **Gram Safai**

To make awareness about clean and neat surrounding students and staff of Radhanagari Mahavidyalaya organizes Gram Safai abhiyan in Radhanagari.



**Plate No. 03: Cleanliness drive at Radhanagari**

- **Jungle Vachan Workshop**

With the objectives of applying sustainable forest management approaches so that forest resources can be used without abusing them Jungle Vachan Workshop was conducted by Radhanagari Mahavidyalaya, Radhanagari.



**Plate No. 04 : Jangle Vachan Workshop**

- **Nisarg Sanvardhan Workshop**

Nisarge Savardhan Workshop was conducted on November 08, 2018 with the objectives to make better use of knowledge about forest and greatly expand this information base, plan for the use and protection of whole landscape not the forest in isolation.



**Plate No. 05 : Workshop on Nisarga Sanvardhan on 08/11/2018**

- **Van Upaj Workshop**

Forest resources can be used to improve life of poor people and for benefits of forest dependent communities. So putting the public interest first and involving people in decision about forest use, Van Upaj (Forest Products and Employment Opportunities )Workshop was conducted on March 3, 2018



**Plate No. 06 : Workshop on Forest Products and employment opportunities on 07/03/2018**

- **Vanya Jeev Saptah**

Radhanagari forest is very rich in biodiversity. It is well known that forest affect ecosystem interactions and climate. To utilize forests full ecological and Social value and to encourage wildlife during Oct.1-7,2019 Wildlife Conservation Week was celebrated.



**Plate No. 07: Celebration of Wild Life Conservation week (1-7 October, 2019)**

- **Abhayananyateel Samaj Jeevan Workshop**

Forest resources can provide us with many goods and ecosystem services, which provide employment for poor people and benefit forest dependent communities to improve life.



**Plate No. 08: Social Life in Reserve Forest Zone on 20/01/2016**

- **Sakal Swachhata Abhiyan (Organised in Radhanagari Reserve Forest)**

Swachhata Abhiyan was organized by Radhanagari Mahavidyalaya to collect and dispose plastic waste in Radhanagari reserve forest area in collaboration with Sakal. Collected waste was sent for recycling.



**Plate No. 09: Cleanliness Drive at Radhanagari**

## **2.5 Environment Awareness Initiatives on the campus**

### **Orchid Nature Club:**

Radhanagari Tehsil is very closely located to the famous Radhanagari Wildlife Sanctuary. The Government of Maharashtra vide its Gazette Notification No. WLP/1085/C. R. 581/V.F.5/ dated 16th September 1985 has declared 351.16 square kilometer area of Radhanagari Wildlife Sanctuary under the provisions of Wildlife (Protection) Act, 1972 (53 of 1972) comprising of the Sanctuary in the State of Maharashtra. The said notification states that: “The sanctuary is known for rich avifauna with about 264 species of birds including migratory, a number of territorial birds of Indian origin stay here around the year, breeding of them have been recorded from this region. Honey buzzard, serpent eagle, hawk eagle, white bellied sea eagle are important raptors in the area.

The area has very high faunal diversity with about 47 species of mammals, about 59 species of reptiles, 20 species of amphibian and 66 species of butterflies are found and the flora of this area is represented by Southern tropical semi-evergreen and west coast semi evergreen forests, southern tropical moist mixed deciduous forests and West coast tropical evergreen

forest. The area also supports important wildlife such as tiger, leopard, sloth bear, wild dog, Indian gaur, sambhar, barking deer.

The location of the Wildlife Sanctuary provides unique opportunity to the institution to make students aware about the environmental concerns. In this light, the institution has established the Orchid Nature Club. The students are motivated to enroll in this club. Different activities such as Jungle Reading, Slide Show, Poster Presentation, Workshops, Speeches, etc. are organized by the Nature Club throughout the year.

The institution feels proud about the alumni who have established the Bison Nature Club. Being inspired by the Orchid Nature Club, it has organized different activities at the local level. Butterfly Festival and Firefly Festival are the noteworthy events organized by the Bison Nature Club which received attention at national level.

<http://www.radhanagaricollege.ac.in/NatureClub.aspx>

- **Value added course on Bee Keeping**

**TRAINING PROGRAMME IN BEE KEEPING**

Importance of honey bee in forest and agricultural ecosystem is well known. Honey bee keeping will conserve the honey bees which are important pollinating agent along with economic benefit to the students living in the vicinity of Radhanagari reserve forest. This will work as a startup for self employment.

**OBJECTIVES OF THE COURSE:**

- To make students economically independent
- To increase agricultural production
- To make use of natural resources
- To cultivate the habit of nature conservation among students

**MAIN FEATURES:**

- Assured earning source
- No need of huge investment
- Facility of availing loan from Small-scale Corporation
- No need of any particular shade

<http://www.radhanagaricollege.ac.in/ShortTermCourses.aspx#>



**Plate No. 10 : No Vehicle Day**



**Plate No. 11: Plastic Free Zone**

- **Tobacco free zone**

Boards are displayed in college campus regarding tobacco free zone

- **Forest, Forest Life and Biodiversity**

Trees ( Forest) has their own place in the economy of nature. As a primary producer in the ecosystem they maintain biodiversity by providing food and shelter to many creatures. They prevent soil erosion, recharge ground water and regulates water cycle. They absorb carbon dioxide like green house gas and release beneficial oxygen during photosynthesis, besides increase in scenery and aesthetic value of that area. So efforts are taken by the Mahavidyalaya to protect forest life and biodiversity. Tree plantation is done in the available area of the campus.

- **Tree plantation**



**Plate No. 12: Plantation at College Campus on 14/07/2020**

Tree plantation programme was organized, by nonteaching staff of Radhanagari Mahavidyalaya on 14/07/2020. Two hundred saplings of different varieties were planted in the available area of Mahavidyalaya. The occasion was graced by Principal Dr. Moruskar, Prof. B. K. Patil, R. K. Patil, D. B. Suryawanshi, Anil Kamble, Maruti Kamble, Narendra Nevade and Amar Chougale.



**Plate No. 13: Plantation at College Campus on 14/07/2020**

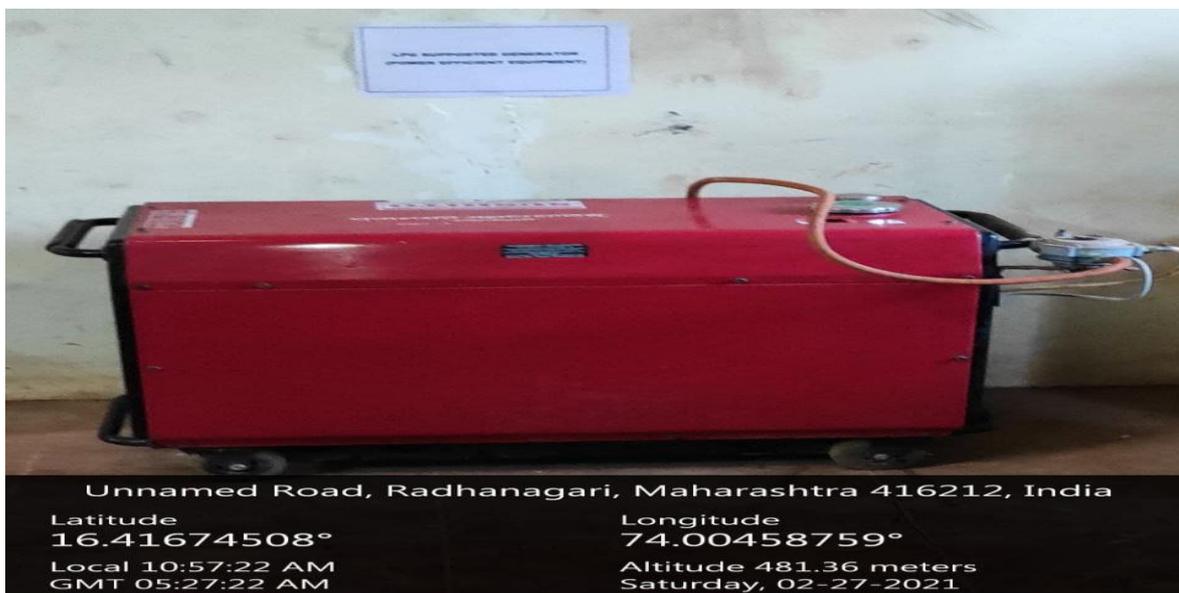
[https://radhanagaricollegenews.blogspot.com/2020/12/blog-post\\_72.html](https://radhanagaricollegenews.blogspot.com/2020/12/blog-post_72.html)

**CHAPTER-3 : ENVIRONMENTAL AUDIT****3.1 Energy Audit:**

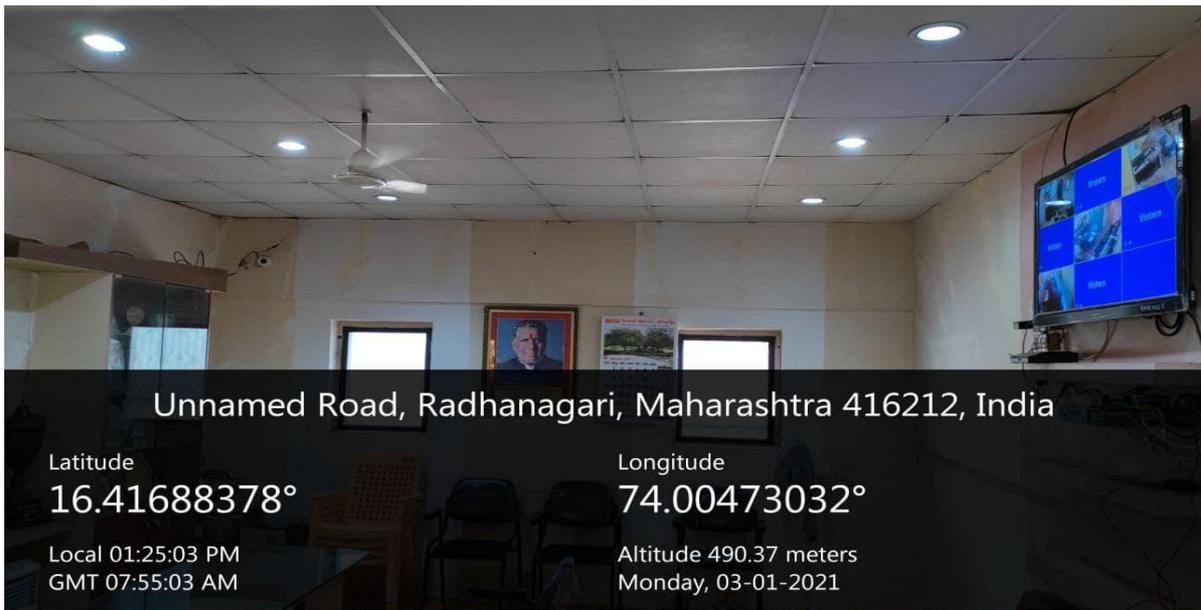
Energy is an important parameter has to be study while going through green audit. We use different forms of energy such as electricity, LPG, petrol, diesel, wood etc. to carry out our day to day activities. On the background of climate change and Paris Agreement, India has intended to reduce its carbon emission by various ways. Reject, Reduce and Replace are the three R's for efficient use of energy. Electricity and LPG are the forms of energy majorly used in higher education institutes. Use of LED lights instead of incandescent lamp and tube lights is one of the important green practices followed by college. Along with use of LED lamps use of natural ventilation, natural light are useful practices to carry out in the college to reduce the use of electricity. Following is the data related to energy consumption and conservation practices analyzed under audit process.

**3.1.1 Energy Consumption:**

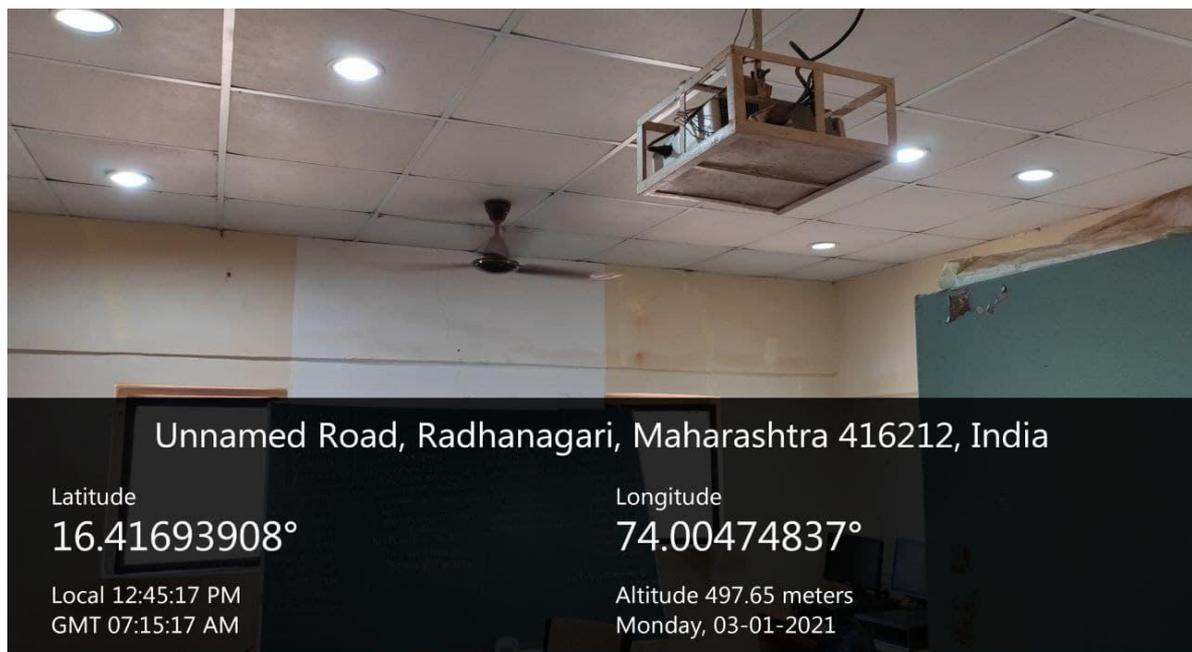
Electricity supplied from the Maharashtra State Electricity Board (Mahavitaran) is the main source of energy for the activities on the campus like illuminating rooms, operating fans computers and for water coolers. LPG operated generator is used as an alternating source of Energy during emergency conditions.



**Plate No. 14 : Generator operated on LPG.**



**Plate No. 15: Replacement of incandescent bulbs by LED bulbs.**



**Plate No. 16: Replacement of incandescent bulbs by LED bulbs.**

### 3.1.2 Energy Conservation:

In order to conserve the energy several measures are taken up by Radhanagari Mahavidyalaya

1. Increased use of LED bulbs against incandescent lamps.
2. Encouragement of on line mode of communication like E- mail.
3. Use of renewable energy like solar energy.
4. Awareness among students regarding power saving (Avoiding unnecessary use)

Replacement of old incandescent bulb and tube lights by LED lamps has been followed and will be continued in the phase manner by college as a response towards green practices of energy conservation.

**Table No. 4 : Details of LED Bulbs/Tube lights**

Sl. No.	Room Details	No. of LED Bulbs	No. of LED Tube lights
1.	Principal Cabin	08	00
2.	Library	06	00
3.	Office	00	01
4.	Computer Room	09	00
5.	Zerox Room	01	00
6.	IQAC Room	00	01
7.	Class Rooms	00	06
8.	Seminar Hall	08	00
9.	Smart Class Room	12	00
10.	Ladies Room/Wash Room	03	00
11.	Veranda	02	00
12.	Staff Room	08	00
	<b>Total</b>	<b>57</b>	<b>08</b>

At Radhanagari Mahavidyalaya, Radhanagari Carbon footprints for indoor lighting in office building in other room is consider. As use of LED and LCD lights reduces carbon footprints. Energy conversion efficiency of normal incandescent lamp is very low and LED lamps consume low power and are efficient incandescent lamps are phased out by LED lamps. As LED lamps does not contain mercury and hazardous gases, they does not generate hazardous waste. Thus LED lamps emerges as the best option to reduce carbon footprints.



**Plate No. 17: Replacement of incandescent bulbs by LED bulbs.**

Old tubes and incandescent lamps are replaced by LED lamps. It is also proposed to complete shift on LED lamps from incandescent lamps phase wise.



**Plate No. 18: Solar Photovoltaic Application at Radhanagari Mahavidyala**

Radhanagai Mahavidyalaya has installed solar Photovoltaic panel for harnessing solar energy.

### 3.2 Water Audit:

Water plays a key role in every environmental system. Water is an amazing material with unique properties that affect life on earth. The earth holds the same water in the same quantity as it did when it was formed. The earth's water continuously circulates from the ocean to the atmosphere, then to the land and back. The atmospheric water cycle helps us to get a regular supply of fresh water every year. Thus fortunately the world's freshwater supply is continually collected, purified, recycled and distributed in the earth's hydrological cycle.

Water is so integral to life that we frequently take it for granted. Freshwater is an irreplaceable resource that we are managing poorly. Despite its importance, water is one of our most poorly managed resources. Even if the Radhanagari gets assured good amount of rainfall, the water is not retained in the ground due to the limitations like topographical features and seasonal rains. Most of the Radhanagari area is covered by thick forest, hence regulation of water cycle by nature is proper. In the area covered by build structures and roads, the rainwater does not percolate into the ground. Hence water conservation measures should be adopted.

#### 3.2.1 Water Consumption:

Requirement of water for domestic purpose is calculated at the rate of 100 lit/person/day and for drinking purpose is calculated at the rate of 10 lit/person/day. At workplace the water requirement is 5lit/person/day, thus the water demand analysis of Radhanagari College shows that on an average requirements of water would be **4500 lit/day** (for Population of **450** including students and staff for domestic and drinking purpose). Daily requirements are fulfilled through water supply from Radhanagari Gram Panchayat water supply and harvested rain water.



**Plate No. 19: Water filter & Cooler**

### 3.2.2 Water Quality:

In college water is used for domestic and drinking purpose. The students which utilize water for drinking purpose must be monitored frequently to avoid the spread of waterborne diseases like Dysentery, Typhoid, Gastro etc. In the Radhanagari college the water is supplied by corporation is treated in water filters and then filled in the water coolers for drinking purpose. Water quality of drinking water from cooler and mixed water is periodically monitored by staffs and routine water analysis is done from laboratory for necessary parameters. It is evident from the reports of water analysis for potability study that the required parameters are within the limits of BIS standards. (Annexure-1)

### 3.2.3 Water Conservation:

#### 3.2.3.1 Efficient use of water:

Leaking taps and open taps without reason waste enormous amounts of water. In many cities, more than half the available supply is lost through these leakages and rotting of pipelines. In Radhanagari College campus instruction boards are displayed at every washroom to avoid wastage of water. Students are instructed to close the taps when they are not in use. Taps and pipelines are regularly checked for leakages and repaired if needed. Leaking taps are immediately replaced by new handy taps.

#### 3.2.3.2 Rain Water Harvesting :

Rain water harvesting can be done by collecting and storing rain water. This is very effective method for our cities. The rain water that falls on the roof can be collected, filtered and stored.

A surprisingly large amount of water can be collected in this way. Rain Water harvesting is done at Radhanagari Mahavidyalaya. Harvested rainwater is stored in tanks, and used whenever required (Plate No. 20)



**Plate No. 20: Unit of Rain Water Collection**



**Plate No. 21: Unit of Rain Water Harvesting**

- Total roof top area available for RWH : **1000 sq. meter.**
- Average annual rainfall in Radhanagari Taluka is is: 3501mm.
- Amount of rain falling on 1000 sq. meter area = Roof Area(Sq m) x 3.5m  
= 1000 x 3.5 cu. m  
= 3500 cubic meters  
= **3500000 lit**

Harvested roof top rainwater can also be used to recharge groundwater. In Radhanagari harvested rain water is used in washrooms and for recharging of ground water in campus.



**Plate No. 22: Rain water storage/harvesting percolation Bunds**



**Plate No. 23: Construction of Vanarai Bandhara**

### 3.3 Air and Noise Quality :

Air and noise quality plays an important role in student's concentration and ability to learn. In noisy environment it is difficult to focus on the subject for students and also it is difficult to teaching faculty. In very noisy environment sometimes teacher has to talk very loudly that he or she may suffer from occupational hazards like pain in throat. As the location of college is in the periphery of the Radhanagari forest so there is no such sources to create pollution of air and noise. Samples for air quality testing and noise level measurement are done. The values of air and noise pollution parameters are observed within the limit. **(Annexure- II & III)**

These parameters are slightly elevated in the campus but are under the prescribed limit of CPCB. Noise level inside the college is below the limit and in suitable range. The college has planted some trees and planning to plant some more to screen the noise and to filter the suspended particulate matters.



**Plate No. 24: Air sample collection at Mahavidyalaya campus**

### 3.4 Green Cover :

The college has planted many trees in the campus through NCC, NSS, other students and faculty members. Though the college has limitation of open space, the plants are planted inside the pots and in available open space. Hostel campus is another space available for tree plantation where students has planted trees. Following is the list of plants with year of plantation. Total 22 plant species are planted in college, hostel and faculty quarters campus.



**Plate No. 25: Plantation at college campus**



**Plate No. 26: Plantation at college campus**

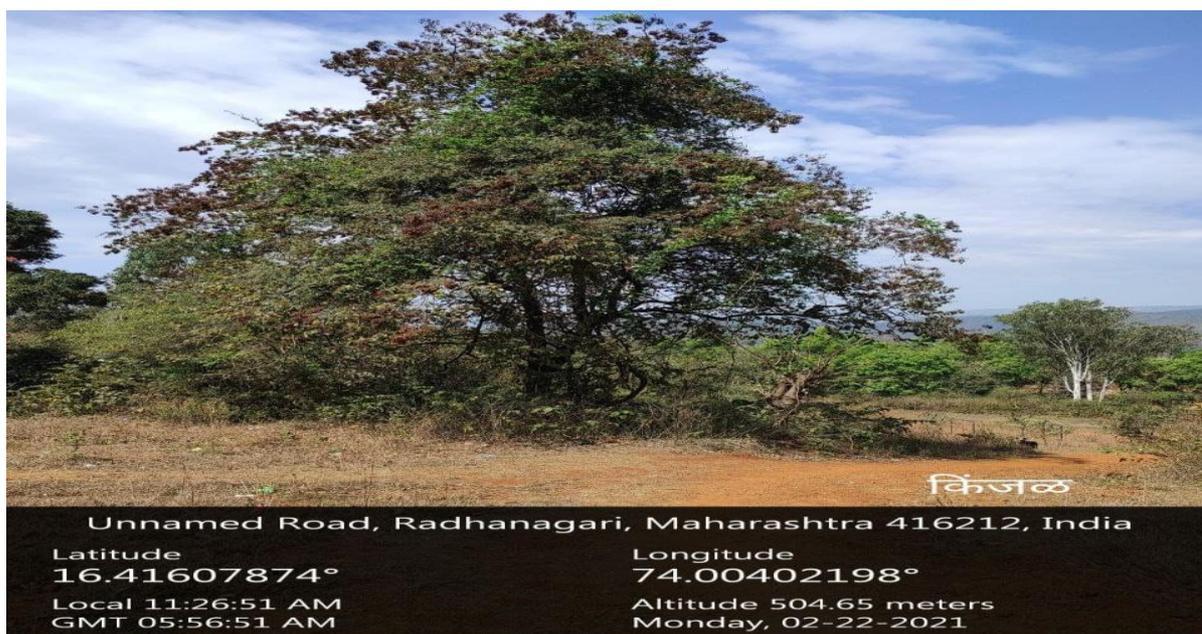


Plate No. 27: Plantation at college campus

Table No. 5 : List of Plant Diversity

Sr. No	Common / Local Name	Botanical Name
1	Australian Babul	Acacia Auriculiformis
2	Palm	Washingtonia Filifera
3	Umber	Ficus racemosa
4	Jambhul	Syzygium Cumini
5	Karanj	Millettia pinnaea
6	Bhokar	Cordia dichotoma
7	Sisam	Dalbergia sissoo
8	Karavand	Carissa Carandar
9	Mango	Mangifera indica
10	Toran	Zyziphus rugosa
11	Bamboo	Bambusa Vulgaris
12	Katak	Strychnos potntorum
13	Lingad	Piplazium esculentum
14	Ganeri	Lantana camara
15	Gotvel	Tinospora Cordifolia
16	Kinjal	Terminalia paniculata
17	Suru	Casuarina Equisetifolia
18	Mad	Malvaceae
19	Dhaman	Mucosa
20	Nilagiri	Eucalyptus Sp
21	Kardali	Canna Indica

### 3.5 Solid Waste Management :

Solid waste generation and its management is a burning issue in current days. The rate of generation of solid waste is very high and yet we do not have adequate system to manage the generated waste. Unscientific handling of solid waste can create threats to public health, wildlife and unintended environmental safety issues. So, it is necessary to manage solid waste properly to reduce the load on waste management system. The purpose of this audit is to find out the quantity, volume, type and current management practices of solid waste generated in the Radhanagari Mahavidyalaya Radhanagari campus. The Mahavidyalaya follows the practice of segregation of waste at source by putting different coloured collection bins in the Mahavidyalaya campus. This will help for further solid waste management and to go for green campus development.



Plate No. 28: Segregation of waste

#### 3.5.1 Biodegradable Waste :

The main source of biodegradable waste in educational institute is generally from student's tiffin and eatables. Garden waste generated from pruning of trees, fallen leaves, etc. is also important source of biodegradable waste. Radhanagari Mahavidyalaya, Radhanagari campus does not have student's mess and canteen thus waste generated from that source is totally absent. The college has taken good care of biodegradable waste by creating vermicomposting pit for garden waste. The garden waste is collected and kept for vermicomposting at a designed site. The prepared waste is then utilized for gardening purpose.



**Plate No. 29: Vermicomposting bins at college campus**

### 3.5.2 Paper Waste :

Paper waste is one of the major chunk of waste generated in college campuses. Though paper is biodegradable material, it is having good potential of recycling thus will help in conserving the resources and trees indirectly. The Radhanagari Mahavidyalaya Radhanagari follows the green practice by giving the paper waste to recycling purpose. The waste paper is sold to specific vender.

Other green practices like use of one sided paper, paperless activities like e-mailing all notices instead of printing it of paper. Putting the information on what's app groups are also practiced in the college to reduce the use of paper. Thus, Reduce, Reuse and Recycle, 3 Rs are followed in the Radhanagari Mahavidyalaya Radhanagari for waste management.

### 3.5.3 Other waste :

Other kinds of waste like e-waste, plastic waste, metal waste generated in the campus is collected, stored and properly disposed off. Otherwise this has serious unintended environmental consequences. Plastic and metal waste is sent for the recycling and recovery practices. Management of E- waste is done by the outsourced agencies. The vender comes and purchases the waste at contract rate. It creates revenue for college along with scientific management of waste. **(Annexure IV: Incite computer, List)**

## CHAPTER 4.0 : BEST ENVIRONMENTAL PRACTICES

Radhanagari Mahavidyalaya, Radhanagari follow all possible green practices to conserve the nature and reduce its ecological footprints. Some of the green practices are discussed below.

### 4.1. No Vehicle Day :

The college practices No Vehicle Day on last Saturday of every month to reduce carbon footprints. On this day the faculty and students try to come by walk, by bicycle or by public transport and keep the college campus clean and free from air and noise pollution.



Plate No. 30: Board regarding No Vehicle Day

### 4.2. Ganesh Moorti and Nirmalya Daan :



Plate No. 31 : Moorti Daan during Ganapati Visarjan

During Gauri Ganesh festival, due to visarjan/emersion of Ganesh Moorti and Nirmalya in near by water reservoirs is done by local people. This will add in the deterioration of water reservoirs. To avoid this Ganesh Moorti and Nirmalya Daan collection campaign was organized by the Mahavidyalaya. Collected Moorti were given for recycling of material and Nirmalya was processed for composting.



**Plate No. 32: Nirmalya Daan during Gouri Ganapati Visarjan**

#### **4.3 Plantation:**

Though the open campus is limited to college, college students and faculty follow plantation activity to nurture the affection towards nature among the students. Plantation has been done at hostel and empty places. Small plants like shrubs and herbs are planted in pots and kept inside the corridors of the college building.



**Plate No. 34: Tree plantation in the campus**

**CHAPTER- 5 : FINDINGS AND SUGGESTIONS :**

After a thorough analysis of green practices and environmental aspects of Radhanagari Mahavidyalaya Radhanagari the audit team has come with following findings and suggestions.

**5.1 Findings :**

- The college campus follows green practices with participation of all students and faculty members.
- Though the campus is limited the college has tried to keep it green by planting trees in the premises.
- Solid waste segregation and management is followed in the campus.
- Drinking water quality is maintained as per the standards.
- Rain water harvesting has been done in the college campus.

**5.2 Suggestions :**

- Solar PVC electricity generation system and solar water heating system can be installed at college and hostel campus for conservation of energy.
- Replacement of all old tube lights and incandescent lamp with LED lamps / tubes are recommended for more energy efficient campus.
- More frequent testing of drinking water is required.
- Mahavidyalaya can go for more paperless activities.

**Overall the performance of Mahavidyalaya is good in green initiative front and can take some more green initiatives for sustainable future**



**CSIBER Trust's**  
**CHHATRAPATI SHAHU INSTITUTE OF BUSINESS EDUCATION**  
**AND RESEARCH (CSIBER), KOLHAPUR**

An Autonomous Institute under UGC, New Delhi and Shivaji University,  
Kolhapur College with Potential for Excellence (CPE) III<sup>rd</sup> Phase

Reaccredited by NAAC with 'A+' Grade (CGPA: 3.55)

**DEPARTMENT OF ENVIRONMENT MANAGEMENT**

Dr. C. S. Dalvi  
Director

Late Dr. A. D. Shinde  
Founder, CSIBER Trust

Dr. R. A. Shinde  
Secretary & Managing Trustee

*Annexure-I*

**WATER ANALYSIS REPORT**

Name of the party : Radhanagari Mahavidyalaya, Radhanagari

Tal- Radhanagari Dist- Kolhapur

Sample collected by : Audit Team

Nature of sample : Tap Water

Sample collected on : 12/02/2021

Sample received on : 12/02/2021

Sr. No.	Parameter	Value	Highest Desirable Limit	Maximum Permissible Limit
1	pH	7.41	7.0-8.5	6.5-9.2
2	Total Hardness	20.00	100.00	500.00
3	Calcium	4.81	75.00	-
4	Magnesium	1.95	50.00	150.00
5	Chlorides	14.20	200.00	600.00
6	MPN/100ml	00	00	10

**NOTE:** All values unless otherwise stated are in mg/l ; except pH.

**MPN:** Most Probable Number of Coliform Bacteria

**Analysed by**  
**(Mr. R. B. Hunashal)**

**Checked by**  
**(Mr. S. S. Gaddi)**



**CSIBER Trust's**  
**CHHATRAPATI SHAHU INSTITUTE OF BUSINESS EDUCATION**  
**AND RESEARCH (CSIBER), KOLHAPUR**

An Autonomous Institute under UGC, New Delhi and Shivaji University,  
Kolhapur College with Potential for Excellence (CPE) III<sup>rd</sup> Phase

Reaccredited by NAAC with 'A+' Grade (CGPA: 3.55)

**DEPARTMENT OF ENVIRONMENT MANAGEMENT**

Dr. C. S. Dalvi  
Director

Late Dr. A. D. Shinde  
Founder, CSIBER Trust

Dr. R. A. Shinde  
Secretary & Managing Trustee

*Annexure-II*

**AIR MONITORING REPORT**

Name of the party : Radhanagari Mahavidyalaya Radhanagari  
Monitoring Station : College Campus  
Monitoring Period : 9.00 am to 9.00 am (24 hrs)  
Instrument Used : High Volume Sampler (NETEL)  
Monitoring Type : Ambient Air Monitoring

Sr. No.	Parameter	Values	CPCB Standards (24 hrs)
		December 15/06/2019	
1	Suspended Particulate Matter (SPM)	68.56	100
2	Respirable Particulate Matter (RSPM)	36.24	50
3	Oxides of Nitrogen (NO <sub>x</sub> )	22.15	30
4	Sulphur Dioxide (SO <sub>2</sub> )	4.16	30

**NOTE:** All values are in ug/m<sup>3</sup>

Monitoring Carried out by  
(Mr. R.B. Hunashal)

Checked by  
( Mr. S. S. Gaddi)



**CSIBER Trust's**  
**CHHATRAPATI SHAHU INSTITUTE OF BUSINESS EDUCATION  
AND RESEARCH (CSIBER), KOLHAPUR**

An Autonomous Institute under UGC, New Delhi and Shivaji University,  
Kolhapur College with Potential for Excellence (CPE) III<sup>rd</sup> Phase

Reaccredited by NAAC with 'A+' Grade (CGPA: 3.55)

**DEPARTMENT OF ENVIRONMENT MANAGEMENT**

Dr. C. S. Dalvi  
Director

Late Dr. A. D. Shinde  
Founder, CSIBER Trust

Dr. R. A. Shinde  
Secretary & Managing Trustee

**Annexure-III**

**NOISE MONITORING REPORT**

Name of the party : Radhanagari Mahavidyalaya Radhanagari  
Monitoring Station : Mahavidyalaya Campus  
Instrument Used : Sound Level Meter (6010)  
Monitoring Type : Ambient Noise Monitoring  
Monitoring Date : 12/02/2021

Sr. No	Location	(Leq) Values in dB(A)
1	Principal Cabin	44.70
2	Staff Room	42.00
3	Administrative Office	45.00
4	Meeting Hall	35.50
5	Corridors	61.80
6	Class Room (out side)	44.30
7	Class Room (In side)	48.30
8	Library	38.40
9	IQAC Cell	50.20
10	Campus	59.20
11	Computer Lab	52.60
12	Multipurpose Hall	38.20
13	Ladies Common Room	48.30
14	Backside campus	41.50

**Monitoring Carried out by**  
**(Mr. R. B. Hunashal)**

**Checked by**  
**(Mr. S. S. Gaddi)**