

CSIBER

(An Autonomous Institute)

CPE (College with Potential for Excellence – Phase III) Status

Environmental Audit Report

(2019-20)



**Chhatrapati Shahu Institute of Business Education and Research,
(CSIBER), Kolhapur**

October, 2020





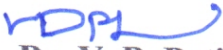
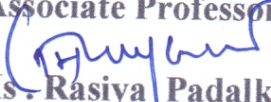
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**CHHATRAPATI SHAHU INSTITUTE OF BUSINESS EDUCATION
AND RESEARCH (CSIBER), KOLHAPUR.**

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

CERTIFICATE

This is to certify that, the Environment Audit Report of **Chhatrapati Shahu Institute of Business Education and Research (CSIBER), Kolhapur** has been prepared and certified by the Department of Environment Management based on the documents produced by the Institute.


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 email: director@siberindia.edu.in

Contact: 0231-2535706/2535707

Fax: 02312535708

ENVIRONMENTAL AUDIT

1. Environmental Policy of the Institute

As one of the pioneer institute in western Maharashtra in the subject of Environment Management we believe in managing our own environment scientifically with the help of advanced technology. We at CSIBER cares about our environment and always tries to minimize our ecological footprint.

2. Environmental Mission

1. Plastic free campus
2. Energy conservation
3. Use of renewable energy
4. Rain water harvesting
5. Environmental and social outreach programs

3. Details of the Institution

3.1. Name and Address of the Institute:

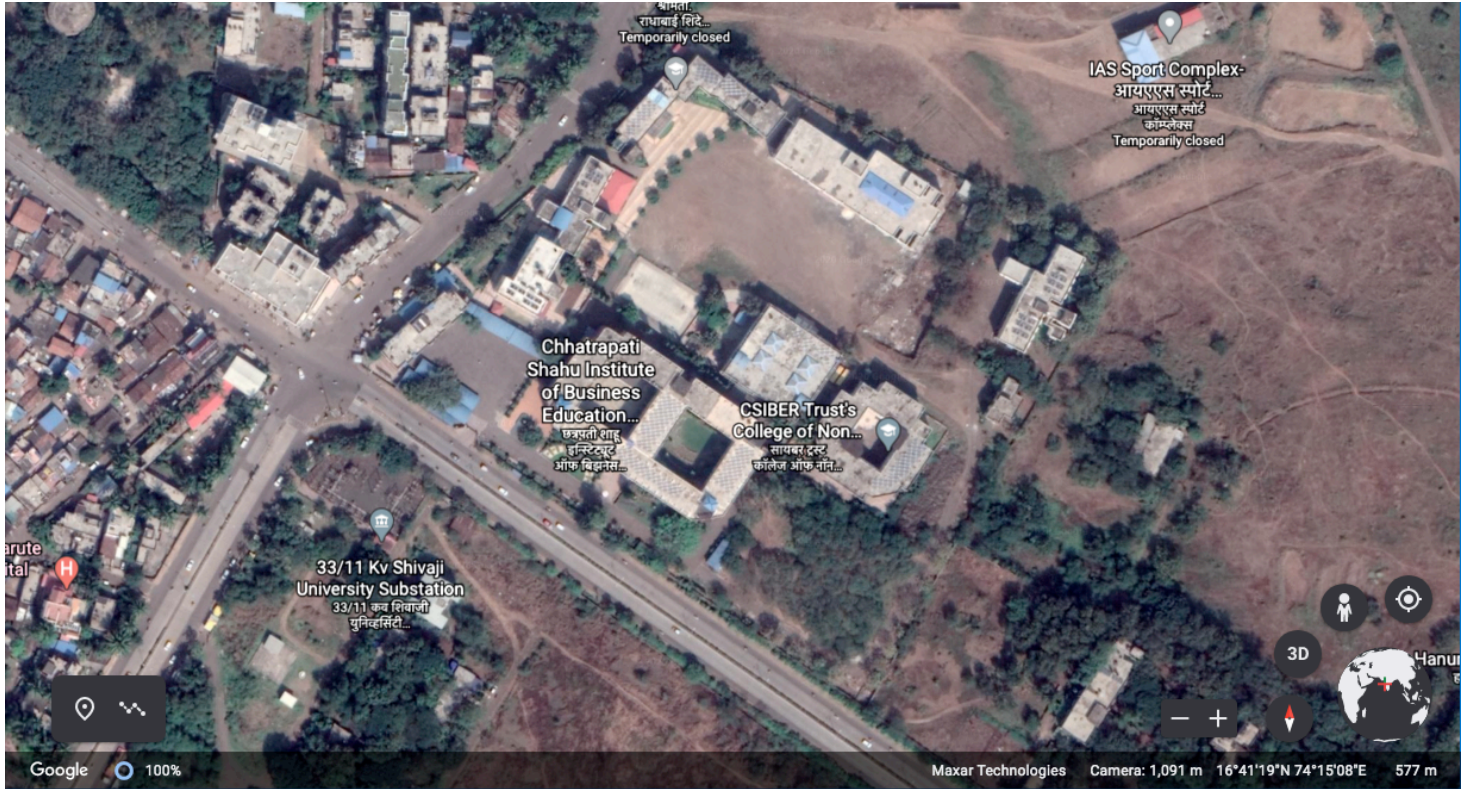
Name	Chhatrapati Shahu Institute of Business Education and Research, Kolhapur
Address	Shivaji University Road, Kolhapur 416004
City	Kolhapur
State	Maharashtra
Website	www.siberindia.edu.in

3.2. Coordinates:

16°41'14" N, 74°15'08" E

Elevation: 590 Mt MSL

3.3. The Google Earth map of the area:



3.4. Details of Location:

City	Taluka	District	City Survey No.	Area (Ha)	Ownership
Kolhapur	Karveer	Kolhapur	369	0.83	CSIBER Trust
			372	4.52	
			373	0.08	
			Road	(-0.75)	
			Total	4.68	

3.5. Land Use Pattern:

Sr. No.	Particulars	Area (Sq. Mt)	%
1	Main Building	4000	8.54
2	RSEM School	2475	5.28
3	CBSE School	4000	8.54
4	CNCVCW	2000	4.27
5	Central Library	1225	2.61
6	Canteen and Bank	525	1.12
7	Ladies Hostel	1125	2.4
8	Boys Hostel	1000	2.13
9	Parking	2200	4.70
10	Staff Quarters	1000	2.13
11	Play Ground	9400	20.08
12	Road	2130	4.55
13	Open Space	15720	33.58
	Total	46800	100

4. Environmental Aspects:

4.1. Water Management

One of the important aspect of environment management is water management. The Institute has both, ground water and surface water supply. The maximum consumption of water is in girls, boys and working women hostel. The use of water in canteen is also considerable. The Institute has taken initiative for conservation of water by installing rain water harvesting system. Along with that, quality of drinking has maintained by installing water purifiers and been tested periodically. The quantitative details of the water management are as follows.

4.1.1. Water Consumption

The institute has one bore well and 2 Kolhapur Municipal Corporation water connections. The water from bore well is used for domestic consumption and KMC water connection is used for drinking purpose after filtration. The institute have 5 tanks of 2000 liters capacity each for domestic consumption in laboratories and washrooms. Along with that, 1000 liters 1 tank and 500 liters 1 tank is there to fulfill the requirement of drinking water. For gardening purpose efficient irrigation systems are in use such as drip and sprinkler irrigation. These systems help to reduce the water consumption with proper growth of vegetation.

Sr. No.	Capacity	Number	Refill / day	Source	Purpose
1	2000 L	5	2 times	Ground water	Domestic use
2	1000 L	1	Once	KMC connection	Drinking purpose
3	500 L	1	Once	KMC connection	Drinking purpose

4.1.2. Water Harvesting

Roof top water harvesting system has been installed for every establishment. The harvested water is collected in a tank and excess water is discharged in bore well for ground water recharge. As a result of this, the ground water availability for the institute is very good. Institute has possessed large terrace areas. About 63 % water requirement is met through our own source of bore well water and rainwater harvesting. Rain water harvesting is calculated based on the following figures and assumptions:

Total Roof Top Area: 2550 m²

Annual Average Precipitation: 1000 mm,

Effective Rainy Days: 69

Average Daily Precipitation: 14.49 mm / 0.014 m

Therefore, the volume of rainwater Harvested /Day: 2550 m² X 0.014 m = 35.7 m³.

On the basis of above assumption rain water harvested in 1 Day is 35.7 m³ X 1000 = 35,700 Liters/annum.



Rain Water Harvesting Tank

4.1.3. Waste water treatment

Institute has taken serious steps in liquid waste management in the campus. The liquid wastes generated in the campus include Sewage, Laboratory, Laundry, hostel, wash rooms, urinals, basins and canteen effluent waste. For the effective treatment of liquid waste generated from all above sources, Institute has constructed two well designed Sewage Treatment Plants (STP) which can treat 25 m³/day of sewage. The STP installed near Central Library having design capacity of 10 m³/day in which sewage from toilets is screened and collected in Aeration Tank which is equipped with Jet Aerator. In this process microbial activity will degrade the organic matter in the effluent in to minerals and water. Microbial activity will be enhanced by using organic culture in aeration tank. This will help in reduction of all the effluent parameters like BOD, COD, Suspended Solids etc. to enable use to reuse this water selectively. We do not use any chemicals for wastewater treatment. Our campus is a chemical-free zone. We use Effective Microbes (EM) technology. The parameters of the treated water are far better than effluent parameters specified by Maharashtra Pollution Control Board (MPCB). While in another STP installed near Ladies Hostel to have eco-friendly and natural treatment, this plant is designed based on the biological treatment concept, this means naturally occurring microbes (which are present in influent water itself) removes or degrade the organic matter present in the effluent and at the end clean water is available for the non potable usage or to dispose safely in the drainage or river bodies as per the norms.

- a. Capacity of STP 1: 25 MLD
- b. Capacity of STP 2: 10 MLD



STP near Library (10 MLD)



Sewage Treatment Plant (Location: Girl Hostel)

STP near girl's hostel 925 (MLD)

4.1.4. Water Quality

The Department of Environment Management has a well established water testing laboratory. The water from each water filter is tested periodically and corrective action is taken on that.

4.2. Waste management

Along with water, waste management is another important aspect in environment management. Various types of wastes generated in the campus are handled carefully and managed scientifically. The details of waste management are as follows.

4.2.1. Solid Waste Management

The Institute aims for an eco friendly campus and to bring this in reality; institute has taken various initiatives in which the campus of the institute has already declared as plastic free zone. Plastics, paper and food waste has been segregated at the initial level only and it has collected in Bins which are placed in different parts of the campus. Apart from this reusable steel plates and glasses are used in the canteen. Kolhapur Municipal Corporation (KMC) collects solid waste from the campus regularly through its solid waste collection vehicle for the further process. Institute always encourage and motivate its staff and students to use of eco friendly bags and files and have taken the initiative to take up campus cleaning programme through extension activities.

- The biodegradable waste generated from the garden is collected in composting bins. Burning of the waste is strictly avoided. Composting is done by turning the waste intermediately to avoid Methane production could be generated from anaerobic process. Prepared compost is used for the garden.
- Other waste generated in the institute like, garbage is collected and transferred to municipal corporation for further treatment.
- Large amount of paper waste is generated in the institute especially from exam department. The answer sheets are stored for five years after that get chopped and sold to the vendor for recycling purpose.
- In every department use of one side papers for printing and rough work is compulsory. This practice saves large number of new papers and ultimately reduces the ecological footprint.
- In ladies hostels, installation of incinerator is proposed for disposal of used sanitary napkins.

4.2.2. *Hazardous Waste Management*

- Generation of hazardous waste is very less in the institute. The only source of generation of hazardous waste is laboratory chemicals and inverter batteries.
- In laboratory, use of hazardous waste is controlled for only essential purpose and that is also under the supervision of expert.
- The inverter batteries when need to be replaced it is being given to the same vender for final disposal.

4.2.3. *E-waste Management*

- In the consideration of waste management, Institute has also given priority for e-waste management in the campus. With respect to e-waste, Institute has unused computers and their peripherals are the only source of electronic waste on the campus. In the Institute as on date more than 500 computers under use for practical and office work. Institute follows the policy for e-waste management in which reuse of old computers by donating them to other schools under the trust and old ones replaced with new under the buyback scheme. As well as every effort is made to repair and use electronic and electrical devices. Piling up of e-waste is discouraged in the campus.

4.3. Quality of Ambient Air

Air quality is important aspect for the health of the students and staff members. Institute has facility to check the ambient air quality with the help of RDS and PM 2.5 for the parameters, RSPM, SO₂ and NO_x. Along with that the noise monitoring has also been done periodically with calibrated Sound Level Meters. The details of air and noise are as follows.

5. Suggestions:

5.1. Water Management

- 5.1.1. Timely maintenance of plumbing system will reduce the leakage losses.
- 5.1.2. More frequent analysis of drinking water quality especially in rainy season will increase the assurance of safe drinking water.

5.2. Solid waste management

- 5.2.1. Vermicomposting instead of regular composting will increase the efficiency and reduce the time of composting. Prepared vermin-compost can be used for campus garden.

5.2.2. Towards paperless office: Cutting into paper usages by shifting from hard office communication to soft communication by using emails, whats app groups etc. It will reduce the single use paper use.

5.2.3. Submission of soft assignments from students can also reduce the use of paper.

5.3. Air Quality

5.3.1. Plantation of indoor plants in corridors, staircases will decrease the indoor air pollution and also increase the aesthetic value of premises.

5.3.2. Plantation of dust and noise screening tree will help to reduce the particulate matter pollution and reduce the noise intensity.

5.3.3. More frequent analysis of ambient air quality will help to monitor the air pollution intensity in the campus.

Annexures attached

Annexure No.	Name	Testing Frequency
1	Water Analysis Report	Quarterly
2	Waste Water Analysis Report	Six Monthly
3	Air Monitoring Report	Six Monthly
4	Noise Monitoring Report	Quarterly



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Annexure No. 1

DEPARTMENT OF ENVIRONMENT MANAGEMENT WATER ANALYSIS REPORT

Name of the party : Chhatrapati Shahu Institute of Business
Education and Research, University Road,
Kolhapur
Sample collected by : Our staff
Nature of sample : Cooler Water (Near MSW Department)

Sr. No	Parameter	Values				Standards	
		June 20/06/2019	September 18/09/2019	December 18/12/2019	March 10/03/2020	Highest Desirable Limit	Maximum Permissible limit
1	pH	7.10	7.40	7.60	7.81	7.0-8.5	6.5-9.2
2	Total Hardness	42.00	56.00	62.00	68.00	100.00	500.00
3	Calcium	11.34	12.83	12.97	13.08	75.00	-
4	Magnesium	4.87	5.65	6.14	6.38	50.00	150.00
5	Chloride	11.36	19.88	25.56	28.40	200.00	600.00
6	MPN/100ml	00	00	00	00	00	10

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

MPN: Most Probable Number of Coliform Bacteria.

Analysed by

Checked by

(Mr. R.B.Hunashal)

(Mr.S.S.Gaddi)



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DEPARTMENT OF ENVIRONMENT MANAGEMENT
WATER ANALYSIS REPORT

Name of the party : Chhatrapati Shahu Institute of Business
Education and Research, University Road,
Kolhapur
Sample collected by : Our staff
Nature of sample : Cooler Water
(Near Environment Department)

Sr. No	Parameter	Values				Standards	
		June 20/06/2019	September 18/09/2019	December 18/12/2019	March 10/03/2020	Highest Desirable Limit	Maximum Permissible limit
1	pH	7.05	7.36	7.52	7.78	7.0-8.5	6.5-9.2
2	Total Hardness	46.00	54.00	58.00	65.00	100.00	500.00
3	Calcium	9.88	12.56	13.16	13.22	75.00	-
4	Magnesium	4.81	5.41	5.87	6.16	50.00	150.00
5	Chloride	11.87	19.16	24.36	26.88	200.00	600.00
6	MPN/100ml	00	00	00	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)



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DEPARTMENT OF ENVIRONMENT MANAGEMENT
WATER ANALYSIS REPORT

Name of the party : Chhatrapati Shahu Institute of Business
Education and Research, University Road,
Kolhapur
Sample collected by : Our staff
Nature of sample : Cooler Water
(Near MBA-II Classroom)

Sr. No	Parameter	Values				Standards	
		June 20/06/2019	September 18/09/2019	December 18/12/2019	March 10/03/2020	Highest Desirable Limit	Maximum Permissible limit
1	pH	7.16	7.41	7.56	7.70	7.0-8.5	6.5-9.2
2	Total Hardness	44.00	56.00	60.00	66.00	100.00	500.00
3	Calcium	10.11	12.51	12.68	12.88	75.00	-
4	Magnesium	4.81	5.56	6.08	6.21	50.00	150.00
5	Chloride	11.36	19.27	25.24	27.18	200.00	600.00
6	MPN/100ml	00	00	00	00	00	10

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

MPN: Most Probable Number of Coliform Bacteria.

Analysed by

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DEPARTMENT OF ENVIRONMENT MANAGEMENT
WATER ANALYSIS REPORT

Name of the party : Chhatrapati Shahu Institute of Business
Education and Research, University Road,
Kolhapur
Sample collected by : Our staff
Nature of sample : Cooler Water
(Near MCA Classroom)

Sr. No	Parameter	Values				Standards	
		June 20/06/2019	September 18/09/2019	December 18/12/2019	March 10/03/2020	Highest Desirable Limit	Maximum Permissible limit
1	pH	7.08	7.39	7.54	7.81	7.0-8.5	6.5-9.2
2	Total Hardness	46.00	52.00	62.00	68.00	100.00	500.00
3	Calcium	10.47	12.97	13.06	13.18	75.00	-
4	Magnesium	4.87	5.60	6.11	6.17	50.00	150.00
5	Chloride	11.48	18.86	24.80	28.40	200.00	600.00
6	MPN/100ml	00	00	00	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)



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Annexure No. 2

DEPARTMENT OF ENVIRONMENT MANAGEMENT

WASTE WATER ANALYSIS REPORT

Name of the party : Chhatrapati Shahu Institute of Business
Education and Research, University Road,
Kolhapur
Sample collected by : Our staff
Nature of sample : STP Water
Sample collected on : 10/03/2020
Sample analyzed on : 10/03/2020

Sr. No.	Parameter	Value	
		Inlet	Outlet
1	pH	7.11	7.46
2	Electrical Conductivity (uS/cm)	846.00	704.00
3	Chemical Oxygen Demand	412.00	56.00
4	Biological Oxygen Demand	131.00	06.00
5	Total Solids	1632.00	475.00
6	Total Dissolved Solids	646.00	467.00
7	Total Suspended Solids`	986.00	08.00
8	Oil & Grease	06.00	04.00

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

Analysed by

Checked by

(Mr. R.B.Hunashal)

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DEPARTMENT OF ENVIRONMENT MANAGEMENT

WASTE WATER ANALYSIS REPORT

Name of the party : Chhatrapati Shahu Institute of Business
Education and Research, University Road,
Kolhapur
Sample collected by : Our staff
Nature of sample : STP Water
Sample collected on : 15/10/2019
Sample analyzed on : 15 /10/2019

Sr. No.	Parameter	Value	
		Inlet	Outlet
1	pH	7.20	7.16
2	Electrical Conductivity (uS/cm)	763.00	686.00
3	Chemical Oxygen Demand	370.00	51.00
4	Biological Oxygen Demand	112.00	04.00
5	Total Solids	1293.00	335.00
6	Total Dissolved Solids	496.00	326.00
7	Total Suspended Solids	787.00	09.00
8	Oil & Grease	05.00	03.00

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

Analysed by

(Mr. R.B.Hunashal)

Checked by

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Annexure No. 3

DEPARTMENT OF ENVIRONMENT MANAGEMENT

AIR MONITORING REPORT

Name of the party : Chhatrapati Shahu Institute of Business
Education and Research, University Road,
Kolhapur

Monitoring Station : CSIBER Campus

Monitoring Period : 8.0 am to 8.0 am (24 hrs)

Instrument Used : Respirable Dust Sampler (Envirotech APM 460BL)

Monitoring Type : Ambient Air Monitoring

Sr. No.	Parameter	Values		CPCB Standards (24 hrs)
		December 10/12/2019	March 11/03/2020	
1	Suspended Particulate Matter (SPM)	48.86	53.17	100
2	Respirable Particulate Matter (RSPM)	28.38	32.53	50
3	Oxides of Nitrogen (NO _x)	20.26	21.24	30
4	Sulphur Dioxide (SO ₂)	3.46	3.61	30

NOTE: All values are in ug/m³

Monitoring Carried out by

Checked by

(Mr. R.B. Hunashal)

(Mr. S. S. Gaddi)



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Annexure No. 4

DEPARTMENT OF ENVIRONMENT MANAGEMENT

NOISE MONITORING REPORT

Name of the party : Chhatrapati Shahu Institute of Business
Education and Research, University Road,
Kolhapur

Monitoring Station : CSIBER Campus

Instrument Used : Sound Level Meter (SLM-100)

Monitoring Type : Ambient Noise Monitoring

Sr. No	Location	(Leq) Values in dB(A)			
		June 14/06/2019	Sept 12/09/2019	Dec 10/12/2019	Mar 11/03/2020
1	Staff Room	45.07	44.89	45.19	47.00
2	Administrative Office	54.44	53.18	51.33	52.52
3	Meeting Hall	39.18	40.10	41.11	40.00
4	Corridors	56.86	58.47	59.77	61.21
5	Class Room (out side)	42.20	43.09	47.83	44.80
6	Class Room (In side)	41.17	41.07	43.03	45.68
7	Library	40.52	40.77	44.14	42.40
8	Reading Room	38.67	37.86	38.51	40.00
9	Canteen	54.73	50.91	58.07	56.37
10	Campus	54.80	55.87	57.76	58.00
11	Entrance (Near Gate)	65.00	62.31	64.41	66.00
12	Near Boys Hostel	46.10	44.83	46.51	46.33
13	Near Ladies Hostel	52.27	53.78	54.00	54.17

NOTE: Weighted average of 8 hrs Monitoring

Monitoring Carried out by

(Mr. R.B. Hunashal)

Checked by

(Mr. S. S. Gaddi)