A.B.M.S. Parishad's

YASHWANTRAO CHAVAN LAW COLLEGE,

PARVATI, PUNE – 411009

ID No. PU/PN/LAW/038/1978, Affiliated to Savitribai Phule Pune University, Recognized by BCI and Accredited by NAAC, Bengaluru

Website- www.yclawcollegepune.org, Email- yclawpune@gmail.com, Telephone- 020-24221002

SSR 2023 for Cycle IV
2017-18 to 2021-2022

Criterion 7 – Institutional Values and Best Practices

Key Indicator – 7.1 Institutional Values and Social Responsibilities

7.1.6 Quality audits on environment and energy regularly undertaken by the Institution.

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LAXMI NAGAR, PARVATI RAMANA,
PUNE, MAHARASHTRA 411009
PHONE NO: 020 2422 1002
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Website: www.yclawcolegepune.org

HAS CARRIED OUT

GREEN (ENVIRONMENT) AUDIT

AS PER GUIDANCE LAID DOWN IN THE
INDIAN STANDARDS AND CODES
IN 2021-22

This certificate is valid for 3 years from 2021-22 to 2023-24

Vinay Mulay
M.Tech (Energy Studies),
Certified BEE Energy Auditor
(EA-10853), Lead Auditor-ISO-50001

Chetan Nemade
M.Tech (Energy Studies), Advance Diploma
in Industrial Safety (ADIS),
BEE Certified Energy Manager (EA-22697)

Yogesh Kuwar
M.Tech (Energy Studies),
Certified BEE Energy Manager (EA-33078),
PGDELP, IGBCTM AP-AA02EEK7

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Principal
Yashwantrao Chavan Law College

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ENERGY AUDIT

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ENERGY CONSERVATION ACT-2001,
MINISTRY OF POWER, GOVERNMENT OF INDIA
IN 2021-22

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ENERGY AUDIT REPORT

ज्ञानं परमं बलम्

A.B.M.S PARISHAD'S

YASHWANTRAO CHAVAN LAW COLLEGE

Laxmi Nagar, Parvati Ramana,

Pune, Maharashtra 411009

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Conducted and Submitted by

ENERFUTURE

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ACKNOWLEDGEMENT

Enerfuture thanks the management of Yashwantrao Chavan Law College, Pune for assigning this important work of Environment Audit of Yashwantrao Chavan Law College, Pune

Environment Audit study is a joint venture exercise of consultant and college/industry/residential society to account and contain energy usage without sacrificing the purpose of energy use.

Contribution of society's team is equally important in this venture. Team of technical experts from Enrfuture Pvt Ltd is grateful to all the following personnel of Yashwantrao Chavan Law College, Pune for their kind cooperation, furnishing required data, analysis report and hospitality offered during our visit.

Name	Designation
Ms Dr Subhada Gholap	Principal
Mr. Pramod Phadtare	Office Superintendent
Mr Ravindra Patil	Assistant professor

We are also thankful to the other staff members who were actively involved while taking measurements and conducting field study.

STUDY TEAM

Sr No	Name	Qualification
1	Mr. Chetan Nemade	M.Tech (Energy Studies), Advance Diploma in Industrial Safety (ADIS), LLB, BEE Certified Energy Manager
2	Mr Vinay Mulay	M.Tech (Energy Studies), ISO 50001 Lead Auditor, BEE Accredited Energy Auditor
3	Mr Swapnil Gaikwad	M.Tech (Energy Studies), ISO 50001 Lead Auditor , BEE Certified Energy Auditor
4	Mr YogeshKuwar	M.Tech (Energy Studies), IGBC, Post Graduate Diploma in Environmental law and Policy (PGDELP), BEE Certified Energy Manager
5	Mr Swapnil bedre	BE Mechanical

LIST OF INSTRUMENTS USED

1. Single Phase Power Analyzer
2. Ultrasonic Water Flow meter
3. Distance Meter (Bosch)
4. Lux meter (Meco)
5. TD meter
6. CO2 meter
7. Air quality measure meter
8. Sound meter

CONTENTS

EXCECUTIVE SUMMARY

Sr no	Location	Area	Proposed Action	Expected Result	Saving Potential	Monetary Saving	Investment	Simple Payback Period
				monthly	kWh	INR	INR	months
1	College building	Lightning recommendations	Replace existing old conventional 1x36W with new energy efficient 1x18W LED tube light battens	Existing lighting consumption=1500kWh Expected energy consumption= 960kWh Total energy saved per month=540kWh	540	6480	30000	4.93
	College building	Fan recommendations	Replace existing old conventional fans which consumes 65W with new energy efficient fans which consumes 28W(18W & 8W for exhaust fan)	Existing fan consumption= 1800kWh Expected energy consumption= 1125kWh Total energy saved per month=675kWh	675	8100	150000	18.51
3	Available rooftop on buildings	Solar PV system	Can be installed 74kWp system	-	2484	29810	993681	33.33

4	College canteen	Bio-gas plant	Installed the 10 kg of bio-gas plant at canteen to save LPG cylinders		1 LPG cylinder	950	25000	26.31

COLLEGE INTRODUCTION

INTRODUCTION

Our Yashwantrao Chavan Law College was established in June 1978. In the beginning, the college was known as A. B. M. S. Parishad' s Law college. However, in the year 1987, in the memory of our country's great visionary leader, Late Shri Yashwantrao Chavan, who rose to the height of Deputy of Prime Minister, the college was named after him, as a mark of respect and honour towards him. The college has been receiving grant-in-aid from the state government. It has received the re-accreditation from NAAC. Our college is affiliated to Savitribai Phule Pune University on permanent basis and also recognized the Bar Council of India, New Delhi.

The College has its own spacious building which is located in the same campus of A B M S Parishad and which has been constructed as per the norms laid down the UGC. The building was inaugurated on 20th February, 2005 at the auspicious hands of Honorable Shri Sharadrao Pawar (Former Agriculture Minister, Government of India and the President of A B M S Parishad) in presence of Mr. Ajit Pawar (Deputy Chief Minister, Govt. of Maharashtra).

The college has kept before itself the goals of advancement and dissemination of knowledge of law and legal process in the context of national development. In accordance with these basic expectations, the college is striving to achieve excellence in the field of legal education and research. While imparting legal education, the college has kept a goal in view that the professional lawyers must be well equipped to perform the various roles which they are expected to in our society.

The college has completed its forty two years. Over the years, it has created a niche in the field of law education in the city. As everybody is aware, Pune city being the seat of learning and education, students from all over Maharashtra, particularly from rural area, and from the other states as well rush to this great city in search of homely atmosphere, where education is imparted to them. It is the vision of our Society and its various institutions to get these students into their fold and groom them for their professional excellence in various fields.

Our college thus provides not only professional excellence in the field of law education but also makes the rural students worthy of entering into the professional field. We make an excellent combination of the state-of-the art education as well as the deep rooted educational culture. Over the years, we have produced thousands of lawyers, who have gone back to their villages and tahsils for serving the society and running the profession successfully. Some of them have also joined as government services and the private sector. This is how our college is fulfilling its commitment of the noble mission.

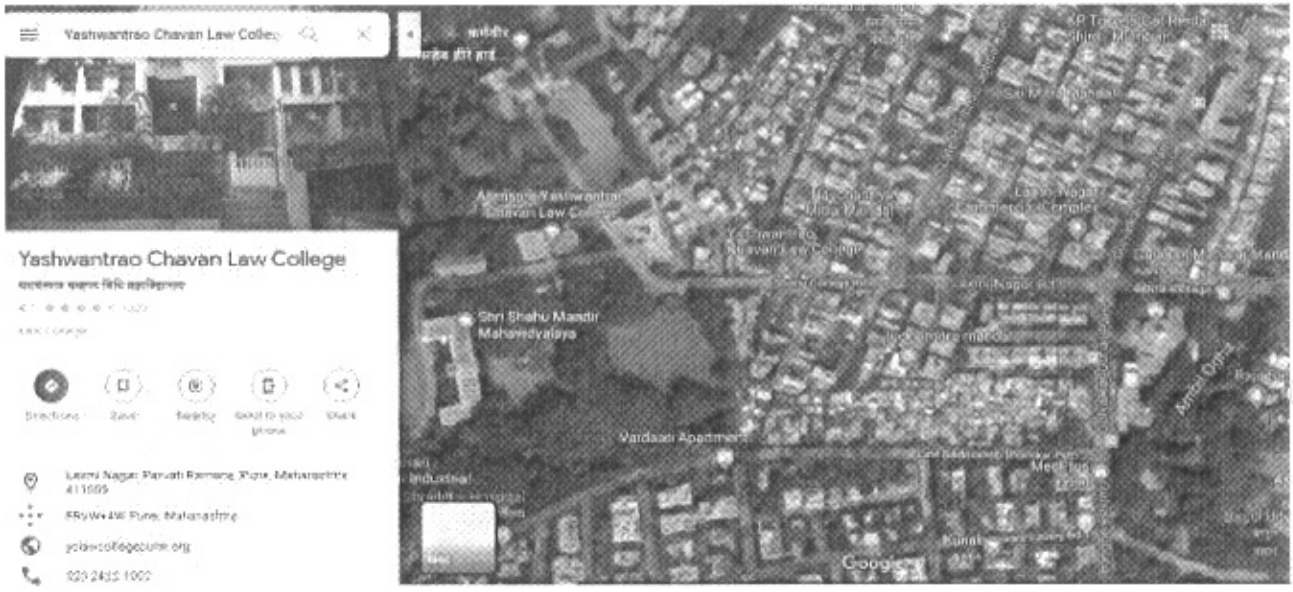
Vision

"Pioneering a high quality legal education and inculcating social, cultural and ethical values in students to emerge as socially good, professionally sound and competent citizens"

Mission

1. To bridge the gap between theoretical knowledge and professional practice.
2. To create the free spirit among the students to serve the interests of justice.
3. To mould students with varied interests, talent and experience into competent, independent and ethical legal professionals.
4. To impart standard legal education to students to have an enduring advantage to confront the challenge of the rapidly changing world.
5. To promote a high level of learning and research ability through interactive education and continuous assessment of academic performance of student.

Location



ELECTRICITY BILL SUMMARY

Yashwantrao Chavan Law College has one MSEDCL three phase LT electricity connection in the main college building and other two have in boy's hostel and girl's hostel.

The major electricity consumption in main college building is lighting and fans during college hours. In boy's and girl's hostel lighting, fans and water pump are main electricity consuming utilities.

ELECTRICITY BILL SUMMARY

1. ELECTRICITY BILL SUMMARY

Meter No	160240191081			
BU	4605			
Connected load	15			kW
Meter	LT-X-B-I, 0-20kW Pub Sector others 3-phase			
	Total units	Adjusted units	Total Bill	Average Unit Rate
	kWh	kWh	INR/month	INR/kWh
Feb-21	1044	0	10033.01	9.61
Mar-21	1289	0	13126.92	10.18
Apr-21	1223	0	13037.18	10.66
May-21	0	0	350	0.00
Jun-21	0	0	350	0.00
Jul-21	3785	1957	20230.19	5.34
Aug-21	668	291	2812.23	4.21
Sep-21	640	1	432.12	0.68
Oct-21	541	0	350	0.65
Nov-21	770	257		0.00
Dec-21	493	197	1835.23	3.72
Jan-22	836	207	6045.52	7.23

Meter No	170012480744		
BU	4605		
Connected load	1		kW
Meter	LT-X-B-I, 0-20kW Pub Sector others 3-phase		
	Total units	Total Bill	Average Unit Rate
	kWh	INR/month	INR/kWh
Feb-21	480	6049	12.60
Mar-21	472	5769	12.22
Apr-21	446	5417	12.15
May-21	512	6270	12.25
Jun-21	479	5866	12.25
Jul-21	431	5167	11.99
Aug-21	368	4309	11.71
Sep-21	441	5349	12.13
Oct-21	809	10813	13.37
Nov-21	798	10715	13.43
Dec-21	1570	22465	14.31
Jan-22	1028	14166	13.78

Meter No	160240583884		
BU	4605		
Connected load	25		kW
Meter	LT-X-B-I, 0-20kW Pub Sector others 3-phase		
	Total units	Total Bill	Average Unit Rate
	kWh	INR/month	INR/kWh
Feb-21	1023	8061.24	7.88
Mar-21	440	3273.6	7.44
Apr-21	2603	18923.81	7.27
May-21	2097	15706.53	7.49
Jun-21	1767	13976.97	7.91
Jul-21	2535	19925.1	7.86
Aug-21	939	6976.77	7.43
Sep-21	3184	24357.6	7.65
Oct-21	1415	10541.75	7.45
Nov-21	2270	16412.1	7.23
Dec-21	1997	15476.75	7.75
Jan-22	987	7880	7.98

OBSERVATION

1. Total monthly energy consumption of the college is approximate 3365 units.
2. Total monthly billing is INR 28,260/-
3. Solar water heating system is installed in hostel for hot water generation as renewable energy source.
4. Also solar photovoltaic system is installed at college building for electricity generation as a renewable energy resource.

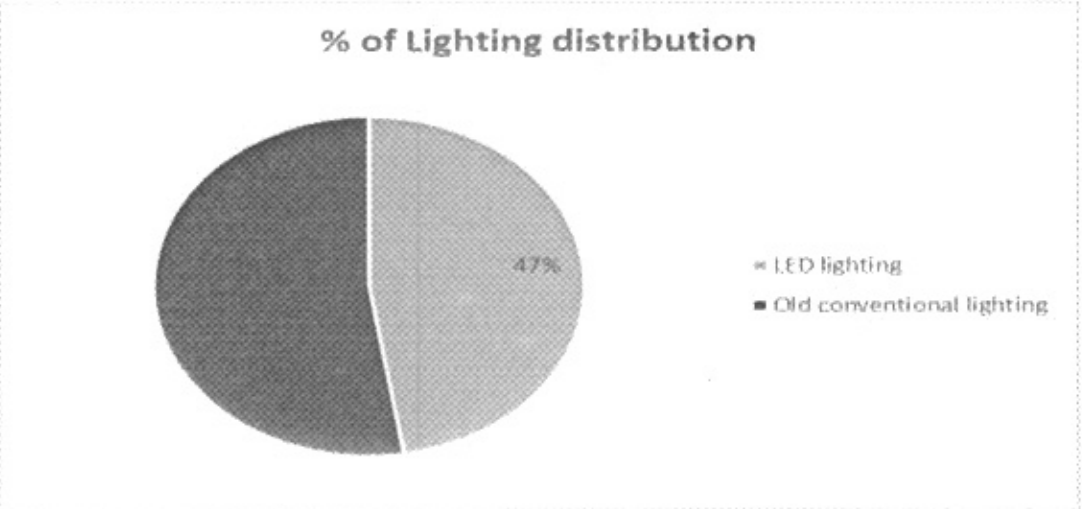
ENERGY PERFORMANCE ASSESSMENT OF LIGHTING

COLLEGE BUILDING AND OTHERS

OBSERVATION

College has installed new energy efficient LED lighting in the college building. There are old conventional lightings are also in the college in use.

Type	Quantity	kW load	% of load
LED lighting	1372	24.70	47.42
Old conventional lighting	1521	54.76	52.58
Total	2893	79.45	100



PERFORMANCE ASSESSMENT OF LIGHTING SYSTEM

Building	Floor	Light Type	Type	Qty	Wattage	Hours of usage	No of Days in a month	Monthly consumption
				Nos	watt	hrs	days	kWh/day
Main building	Ground floor	LED	1x18W	12	18	5	25	27.00
		FTL	1x36W	40	36	5	25	180.00
		LED	1x18W	28	18	5	25	63.00
		FTL	1x36W	3	36	5	25	13.50
		LED	1x18W	15	18	5	25	33.75
		LED	1x18W	1	18	5	25	2.25
		LED	1x18W	8	18	5	25	18.00
		LED	1x18W	38	18	5	25	85.50
		LED	1x18W	3	18	5	25	6.75
		FTL	1x36W	61	36	5	25	274.50
		LED	1x18W	22	18	5	25	49.50
		FTL	1x36W	16	36	5	25	72.00
		LED	1x18W	38	18	5	25	85.50
		FTL	1x36W	4	36	5	25	18.00
		LED	1x9W	25	9	5	25	28.13
		LED	1x18W	13	18	5	25	29.25
		FTL	1x36W	20	36	5	25	90.00
		FTL	1x18W	44	18	5	25	99.00
		FTL	1x36W	36	36	5	25	162.00
		LED	1x50W	24	18	5	25	54.00
		FTL	1x36W	50	36	5	25	225.00
	First floor	FTL	1x36W	40	36	5	25	180.00

		FTL	1x36W	34	36	5	25	153.00
		FTL	1x36W	7	36	5	25	31.50
		FTL	1x36W	31	36	5	25	139.50
		FTL	1x36W	84	36	5	25	378.00
		FTL	1x36W	51	36	5	25	229.50
		LED	1x18W	2	18	5	25	4.50
		FTL	1x36W	32	36	5	25	144.00
		LED	1x18W	50	18	5	25	112.50
		FTL	1x36W	99	36	5	25	445.50
		LED	1x18W	32	18	5	25	72.00
		LED	1x18W	48	18	5	25	108.00
	Second floor	LED	1x18W	5	18	5	5	2.25
		FTL	1x36W	18	36	5	25	81.00
		FTL	1x36W	43	36	5	25	193.50
		FTL	1x36W	19	36	5	25	85.50
		FTL	1x36W	25	36	5	25	112.50
		LED	1x18W	45	18	5	25	101.25
		LED	1x18W	86	18	5	25	193.50
		FTL	1x36W	9	36	5	25	40.50
		FTL	1x36W	20	36	5	25	90.00
	Third floor	LED	1x18W	9	18	5	25	20.25
		FTL	1x36W	82	36	5	25	369.00
		LED	1x18W	88	18	5	25	198.00
Premises		LED	1x18W	15	18	5	25	33.75
		FTL	1x36W	7	36	5	25	31.50
		LED	1x18W	47	18	5	25	105.75
Hostels		LED	1x18W	150	18	5	25	337.50

		FTL	1x36W	72	36	5	25	324.00
		LED	1x18W	114	18	5	25	256.50
		FTL	1x36W	114	36	5	25	513.00
		LED	1x18W	95	18	5	25	213.75
		FTL	1x36W	95	36	5	25	427.50
		LED	1x18W	11	18	5	25	24.75
		FTL	1x36W	4	36	5	25	18.00
		FTL	1x36W	2	36	5	25	9.00
		LED	1x18W	3	18	10	30.5	16.47
		FTL	1x36W	2	36	10	30.5	21.96
		LED	1x18W	20	18	10	30.5	109.80
		FTL	1x36W	20	36	10	30.5	219.60
		LED	1x18W	4	18	10	30.5	21.96
		FTL	1x36W	3	36	10	30.5	32.94
		LED	1x18W	15	18	10	30.5	82.35
		FTL	1x36W	18	36	10	30.5	197.64
		LED	1x18W	6	18	10	30.5	32.94
		FTL	1x36W	6	36	10	30.5	65.88
		LED	1x18W	2	18	10	30.5	10.98
		FTL	1x36W	2	36	10	30.5	21.96
		LED	1x18W	8	18	10	30.5	43.92
		FTL	1x36W	9	36	10	30.5	98.82
		LED	1x18W	2	18	10	30.5	10.98
		FTL	1x36W	2	36	10	30.5	21.96
		LED	1x18W	1	18	10	30.5	5.49
		LED	1x18W	22	18	10	30.5	120.78
		FTL	1x36W	22	36	10	30.5	241.56

		LED	1x18W	6	18	10	30.5	32.94
		FTL	1x36W	7	36	10	30.5	76.86
		FTL	1x36W	2	36	10	30.5	21.96
		LED	1x18W	3	18	10	30.5	16.47
		FTL	1x36W	3	36	10	30.5	32.94
		LED	1x18W	5	18	10	30.5	27.45
		FTL	1x36W	4	36	10	30.5	43.92
		LED	1x18W	4	18	10	30.5	21.96
		FTL	1x36W	4	36	10	30.5	43.92
		LED	1x18W	19	18	10	30.5	104.31
		FTL	1x36W	20	36	10	30.5	219.60
		LED	1x18W	4	18	10	30.5	21.96
		FTL	1x36W	4	36	10	30.5	43.92
		LED	1x18W	8	18	10	30.5	43.92
		FTL	1x36W	9	36	10	30.5	98.82
		LED	1x18W	2	18	10	30.5	10.98
		FTL	1x36W	2	36	10	30.5	21.96
		LED	1x18W	3	18	10	30.5	16.47
		FTL	1x36W	4	36	10	30.5	43.92
		LED	1x18W	3	18	10	30.5	16.47
		FTL	1x36W	3	36	10	30.5	32.94
		LED	1x18W	12	18	10	30.5	65.88
		FTL	1x36W	13	36	10	30.5	142.74
		LED	1x18W	29	18	10	30.5	159.21
		FTL	1x36W	29	36	10	30.5	318.42
		LED	1x18W	23	18	10	30.5	126.27
		FTL	1x36W	24	36	10	30.5	263.52

		LED	1x18W	4	18	10	30.5	21.96
		FTL	1x36W	5	36	10	30.5	54.90
		LED	1x18W	27	18	10	30.5	148.23
		FTL	1x36W	28	36	10	30.5	307.44
		LED	1x18W	24	18	10	30.5	131.76
		FTL	1x36W	24	36	10	30.5	263.52
		LED	1x18W	26	18	10	30.5	142.74
		FTL	1x36W	26	36	10	30.5	285.48
		LED	1x18W	15	18	10	30.5	82.35
		FTL	1x36W	15	36	10	30.5	164.70
		LED	1x18W	6	18	10	30.5	32.94
		FTL	1x36W	6	36	10	30.5	65.88
		LED	1x18W	4	18	10	30.5	21.96
		FTL	1x36W	4	36	10	30.5	43.92
		LED	1x18W	21	18	10	30.5	115.29
		FTL	1x36W	21	36	10	30.5	230.58
		LED	1x18W	7	18	10	30.5	38.43
		FTL	1x36W	7	36	10	30.5	76.86
		LED	1x18W	2	18	10	30.5	10.98
		FTL	1x36W	3	36	10	30.5	32.94
		LED	1x18W	3	18	10	30.5	16.47
		FTL	1x36W	3	36	10	30.5	32.94
		LED	1x18W	5	18	10	30.5	27.45
		FTL	1x36W	5	36	10	30.5	54.90

ENERGY SAVING MEASURES

Building	Floor	Change	New wattage	New used Qty	New monthly consumption	Monthly saving	Total investment	Payback period
			watt	nos	kWh/month	kWh/month	INR	months
Main building	Ground floor	No change	18	12	27.00	0.00	0	#DIV/0!
		LED-1x18W	18	40	90.00	90.00	6800	5.77
		No change	18	28	63.00	0.00	0	#DIV/0!
		LED-1x18W	18	3	6.75	6.75	510	5.77
		No change	18	15	33.75	0.00	0	#DIV/0!
		No change	18	1	2.25	0.00	0	#DIV/0!
		No change	18	8	18.00	0.00	0	#DIV/0!
		No change	18	38	85.50	0.00	0	#DIV/0!
		No change	18	3	6.75	0.00	0	#DIV/0!
		LED-1x18W	18	61	137.25	137.25	10370	5.77
		No change	18	22	49.50	0.00	0	#DIV/0!
		LED-1x18W	18	16	36.00	36.00	2720	5.77
		No change	18	38	85.50	0.00	0	#DIV/0!
		LED-1x18W	18	4	9.00	9.00	680	5.77
		No change	9	25	28.13	0.00	0	#DIV/0!
		No change	18	13	29.25	0.00	0	#DIV/0!
		LED-1x18W	18	20	45.00	45.00	3400	5.77
		LED-1x18W	9	44	49.50	49.50	6600	10.18
		LED-1x18W	18	36	81.00	81.00	6120	5.77

		No change	50	24	150.00	-96.00	0	0.00
		LED-1x18W	18	50	112.50	112.50	8500	5.77
	First floor	LED-1x18W	18	40	90.00	90.00	6800	5.77
		LED-1x18W	18	34	76.50	76.50	5780	5.77
		LED-1x18W	18	7	15.75	15.75	1190	5.77
		LED-1x18W	18	31	69.75	69.75	5270	5.77
		LED-1x18W	18	84	189.00	189.00	14280	5.77
		LED-1x18W	18	51	114.75	114.75	8670	5.77
		No change	18	2	4.50	0.00	0	#DIV/0!
		LED-1x18W	18	32	72.00	72.00	5440	5.77
		No change	18	50	112.50	0.00	0	#DIV/0!
		LED-1x18W	18	99	222.75	222.75	16830	5.77
		No change	18	32	72.00	0.00	0	#DIV/0!
		No change	18	48	108.00	0.00	0	#DIV/0!
	Second floor	No change	18	5	2.25	0.00	0	#DIV/0!
		LED-1x18W	18	18	40.50	40.50	3060	5.77
		LED-1x18W	18	43	96.75	96.75	7310	5.77
		LED-1x18W	18	19	42.75	42.75	3230	5.77
		LED-1x18W	18	25	56.25	56.25	4250	5.77
		No change	18	45	101.25	0.00	0	#DIV/0!
		No change	18	86	193.50	0.00	0	#DIV/0!
		LED-1x18W	18	9	20.25	20.25	1530	5.77
		LED-1x18W	18	20	45.00	45.00	3400	5.77
	Third floor	No change	18	9	20.25	0.00	0	#DIV/0!
		LED-1x18W	18	82	184.50	184.50	13940	5.77
		No change	18	88	198.00	0.00	0	#DIV/0!
Premises		No change	18	15	33.75	0.00	0	#DIV/0!

		LED-1x18W	18	7	15.75	15.75	1190	5.77
		No change	18	47	105.75	0.00	0	#DIV/0!
Hostels		No change	18	150	337.50	0.00	0	#DIV/0!
		LED-1x18W	18	72	162.00	162.00	12240	5.77
		No change	18	114	256.50	0.00	0	#DIV/0!
		LED-1x18W	18	114	256.50	256.50	19380	5.77
		No change	18	95	213.75	0.00	0	#DIV/0!
		LED-1x18W	18	95	213.75	213.75	16150	5.77
		No change	18	11	24.75	0.00	0	#DIV/0!
		LED-1x18W	18	4	9.00	9.00	680	5.77
		LED-1x18W	18	2	4.50	4.50	340	5.77
		No change	18	3	16.47	0.00	0	#DIV/0!
		LED-1x18W	18	2	10.98	10.98	340	2.36
		No change	18	20	109.80	0.00	0	#DIV/0!
		LED-1x18W	18	20	109.80	109.80	3400	2.36
		No change	18	4	21.96	0.00	0	#DIV/0!
		LED-1x18W	18	3	16.47	16.47	510	2.36
		No change	18	15	82.35	0.00	0	#DIV/0!
		LED-1x18W	18	18	98.82	98.82	3060	2.36
		No change	18	6	32.94	0.00	0	#DIV/0!
		LED-1x18W	18	6	32.94	32.94	1020	2.36
		No change	18	2	10.98	0.00	0	#DIV/0!
		LED-1x18W	18	2	10.98	10.98	340	2.36
		No change	18	8	43.92	0.00	0	#DIV/0!
		LED-1x18W	18	9	49.41	49.41	1530	2.36
		No change	18	2	10.98	0.00	0	#DIV/0!
		LED-1x18W	18	2	10.98	10.98	340	2.36

		No change	18	1	5.49	0.00	0	#DIV/0!
		No change	18	22	120.78	0.00	0	#DIV/0!
		LED-1x18W	18	22	120.78	120.78	3740	2.36
		No change	18	6	32.94	0.00	0	#DIV/0!
		LED-1x18W	18	7	38.43	38.43	1190	2.36
		LED-1x18W	18	2	10.98	10.98	340	2.36
		No change	18	3	16.47	0.00	0	#DIV/0!
		LED-1x18W	18	3	16.47	16.47	510	2.36
		No change	18	5	27.45	0.00	0	#DIV/0!
		LED-1x18W	18	4	21.96	21.96	680	2.36
		No change	18	4	21.96	0.00	0	#DIV/0!
		LED-1x18W	18	4	21.96	21.96	680	2.36
		No change	18	19	104.31	0.00	0	#DIV/0!
		LED-1x18W	18	20	109.80	109.80	3400	2.36
		No change	18	4	21.96	0.00	0	#DIV/0!
		LED-1x18W	18	4	21.96	21.96	680	2.36
		No change	18	8	43.92	0.00	0	#DIV/0!
		LED-1x18W	18	9	49.41	49.41	1530	2.36
		No change	18	2	10.98	0.00	0	#DIV/0!
		LED-1x18W	18	2	10.98	10.98	340	2.36
		No change	18	3	16.47	0.00	0	#DIV/0!
		LED-1x18W	18	4	21.96	21.96	680	2.36
		No change	18	3	16.47	0.00	0	#DIV/0!
		LED-1x18W	18	3	16.47	16.47	510	2.36
		No change	18	12	65.88	0.00	0	#DIV/0!
		LED-1x18W	18	13	71.37	71.37	2210	2.36
		No change	18	29	159.21	0.00	0	#DIV/0!

		LED-1x18W	18	29	159.21	159.21	4930	2.36
		No change	18	23	126.27	0.00	0	#DIV/0!
		LED-1x18W	18	24	131.76	131.76	4080	2.36
		No change	18	4	21.96	0.00	0	#DIV/0!
		LED-1x18W	18	5	27.45	27.45	850	2.36
		No change	18	27	148.23	0.00	0	#DIV/0!
		LED-1x18W	18	28	153.72	153.72	4760	2.36
		No change	18	24	131.76	0.00	0	#DIV/0!
		LED-1x18W	18	24	131.76	131.76	4080	2.36
		No change	18	26	142.74	0.00	0	#DIV/0!
		LED-1x18W	18	26	142.74	142.74	4420	2.36
		No change	18	15	82.35	0.00	0	#DIV/0!
		LED-1x18W	18	15	82.35	82.35	2550	2.36
		No change	18	6	32.94	0.00	0	#DIV/0!
		LED-1x18W	18	6	32.94	32.94	1020	2.36
		No change	18	4	21.96	0.00	0	#DIV/0!
		LED-1x18W	18	4	21.96	21.96	680	2.36
		No change	18	21	115.29	0.00	0	#DIV/0!
		LED-1x18W	18	21	115.29	115.29	3570	2.36
		No change	18	7	38.43	0.00	0	#DIV/0!
		LED-1x18W	18	7	38.43	38.43	1190	2.36
		No change	18	2	10.98	0.00	0	#DIV/0!
		LED-1x18W	18	3	16.47	16.47	510	2.36
		No change	18	3	16.47	0.00	0	#DIV/0!
		LED-1x18W	18	3	16.47	16.47	510	2.36
		No change	18	5	27.45	0.00	0	#DIV/0!
		LED-1x18W	18	5	27.45	27.45	850	2.36

Total lighting savings- College building and Other		
Monthly consumption	1500	kWh/month
New monthly consumption	960	kWh/month
New monthly saving	540	kWh/month
New monthly saving	**6,480**	**INR/month**
Total Investment	30,000	INR
Payback period	**4.93**	**months**

ENERGY SAVING MEASURES- OTHER RECOMMENDATIONS

College can installed motions sensor LED tube lights or bulbs where lighting is on for maximum period and occupancy or motion is less. This save additional energy by automatic switching of lighting.

ENERGY PERFORMANCE ASSESSMENT OF FAN

COLLEGE BUILDING AND OTHERS

OBSERVATION

College has installed old conventional induction motor fan which consumes 65W at full speed. It is recommended that replace old fan which are operated maximum usage per day with new energy efficient fan which consumes 28W at full speed. Also exhaust fan of 50W with 18W energy efficient fans.

ENERGY SAVING MEASURES

Building	Floor	Qty	Wattage	Hours of usage	No of Days in a month	Monthly consumption	New wattage	New monthly consumption	Monthly saving	Total investment	Payback period
		Nos	watt	hrs	days	kWh/day	watt	kWh/month	kWh/month	INR	months
Main building	Ground floor	3	70	5	25	26.25	28	10.50	15.75	5400	26.17
		1	70	5	25	8.75	28	3.50	5.25	1800	26.17
		4	70	5	25	35.00	28	14.00	21.00	7200	26.17
		4	70	5	25	35.00	28	14.00	21.00	7200	26.17
		1	70	5	25	8.75	28	3.50	5.25	1800	26.17
		12	70	5	25	105.00	28	42.00	63.00	21600	26.17
		2	70	5	25	17.50	28	7.00	10.50	3600	26.17
		2	70	5	25	17.50	28	7.00	10.50	3600	26.17
		6	70	5	25	52.50	28	21.00	31.50	10800	26.17
		3	70	5	25	26.25	28	10.50	15.75	5400	26.17
		10	70	5	25	87.50	28	35.00	52.50	18000	26.17

		2	70	5	25	17.50	28	7.00	10.50	3600	26.17
		4	70	5	25	35.00	28	14.00	21.00	7200	26.17
	First floor	1	70	5	25	8.75	28	3.50	5.25	1800	26.17
		3	70	5	25	26.25	28	10.50	15.75	5400	26.17
		1	70	5	25	8.75	28	3.50	5.25	1800	26.17
		7	70	5	25	61.25	28	24.50	36.75	12600	26.17
		14	70	5	25	122.50	28	49.00	73.50	25200	26.17
		5	70	5	25	43.75	28	17.50	26.25	9000	26.17
		5	70	5	25	43.75	28	17.50	26.25	9000	26.17
		9	70	5	25	78.75	28	31.50	47.25	16200	26.17
		1	70	5	25	8.75	28	3.50	5.25	1800	26.17
		3	70	5	25	26.25	28	10.50	15.75	5400	26.17
		2	70	5	25	17.50	28	7.00	10.50	3600	26.17
	Second floor	2	70	5	25	17.50	28	7.00	10.50	3600	26.17
		2	70	5	25	17.50	28	7.00	10.50	3600	26.17
		4	70	5	25	35.00	28	14.00	21.00	7200	26.17
		4	70	5	25	35.00	28	14.00	21.00	7200	26.17
		3	70	5	25	26.25	28	10.50	15.75	5400	26.17
		3	70	5	25	26.25	28	10.50	15.75	5400	26.17
		3	70	5	25	26.25	28	10.50	15.75	5400	26.17
	Third floor	20	70	5	25	175.00	28	70.00	105.00	36000	26.17
		2	70	5	25	17.50	28	7.00	10.50	3600	26.17
Premises		5	70	5	25	43.75	28	17.50	26.25	9000	26.17
		1	70	5	25	8.75	28	3.50	5.25	1800	26.17
Hostels		10	70	5	25	87.50	28	35.00	52.50	18000	26.17
		1	70	5	25	8.75	28	3.50	5.25	1800	26.17
		1	70	5	25	8.75	28	3.50	5.25	1800	26.17

		2	70	5	25	17.50	28	7.00	10.50	3600	26.17
		3	70	8	30.5	51.24	28	20.50	30.74	5400	13.41
		2	70	8	30.5	34.16	28	13.66	20.50	3600	13.41
		2	70	8	30.5	34.16	28	13.66	20.50	3600	13.41
		4	70	8	30.5	68.32	28	27.33	40.99	7200	13.41
		5	70	8	30.5	85.40	28	34.16	51.24	9000	13.41
		3	70	8	30.5	51.24	28	20.50	30.74	5400	13.41
		9	70	8	30.5	153.72	28	61.49	92.23	16200	13.41
		3	70	8	30.5	51.24	28	20.50	30.74	5400	13.41
		6	70	8	30.5	102.48	28	40.99	61.49	10800	13.41
		13	70	8	30.5	222.04	28	88.82	133.22	23400	13.41
		10	70	8	30.5	170.80	28	68.32	102.48	18000	13.41
		3	70	8	30.5	51.24	28	20.50	30.74	5400	13.41
		4	70	8	30.5	68.32	28	27.33	40.99	7200	13.41
		1	70	8	30.5	17.08	28	6.83	10.25	1800	13.41
		1	70	8	30.5	17.08	28	6.83	10.25	1800	13.41
		3	70	8	30.5	51.24	28	20.50	30.74	5400	13.41
		3	70	8	30.5	51.24	28	20.50	30.74	5400	13.41
		3	70	8	30.5	51.24	28	20.50	30.74	5400	13.41
		1	70	8	30.5	17.08	28	6.83	10.25	1800	13.41
		2	70	8	30.5	34.16	28	13.66	20.50	3600	13.41
		5	70	8	30.5	85.40	28	34.16	51.24	9000	13.41
		2	70	8	30.5	34.16	28	13.66	20.50	3600	13.41
		1	70	8	30.5	17.08	28	6.83	10.25	1800	13.41
		1	70	8	30.5	17.08	28	6.83	10.25	1800	13.41
		1	70	8	30.5	17.08	28	6.83	10.25	1800	13.41
		1	70	8	30.5	17.08	28	6.83	10.25	1800	13.41
		2	70	8	30.5	34.16	28	13.66	20.50	3600	13.41
		2	70	8	30.5	34.16	28	13.66	20.50	3600	13.41
		2	70	8	30.5	34.16	28	13.66	20.50	3600	13.41

		1	70	8	30.5	17.08	28	6.83	10.25	1800	13.41
		1	70	8	30.5	17.08	28	6.83	10.25	1800	13.41
		3	70	8	30.5	51.24	28	20.50	30.74	5400	13.41
		3	70	8	30.5	51.24	28	20.50	30.74	5400	13.41
		3	70	8	30.5	51.24	28	20.50	30.74	5400	13.41
		3	70	8	30.5	51.24	28	20.50	30.74	5400	13.41
		3	70	8	30.5	51.24	28	20.50	30.74	5400	13.41

Total fan savings- College building and other			
Monthly consumption		1800	kWh/month
New monthly consumption		1125	kWh/month
New monthly saving		675	kWh/month
New monthly saving		**8,100**	**INR/month**
Total Investment		1,50,00	INR
Payback period		**18.51**	**months**

RENEWABLE ENERGY SYSTEMS

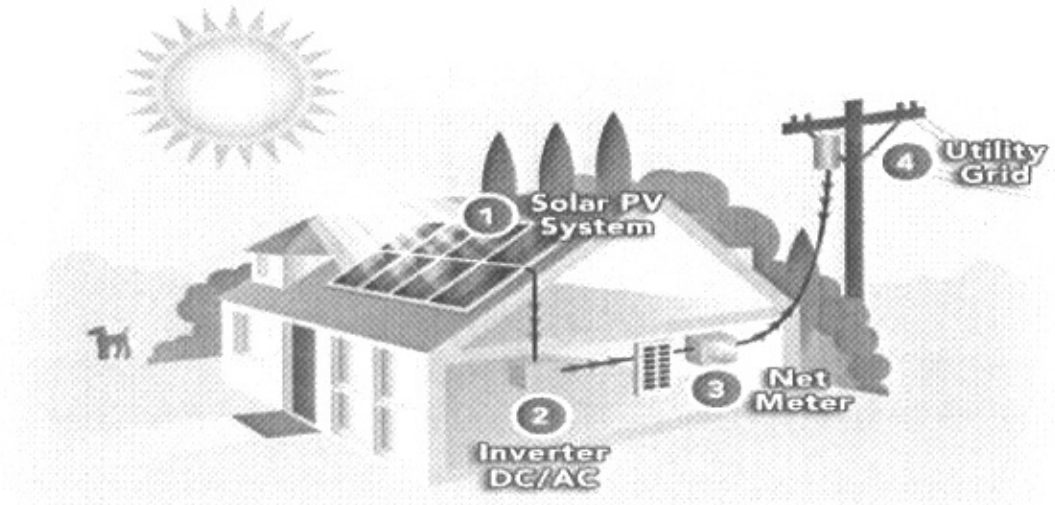
1. SOLAR PHOTOVOLTAIC SYSTEM- ELECTRICAL ENERGY GENERATION

INTRODUCATION

Solar photovoltaic system- with Net meter

Maharashtra Government has new solar energy policy name as "Rooftop Solar with Net Meter system". Maharashtra government encourages to install rooftop solar PV system with net meters at available roof top of consumers. This helps to reduce the burden on existing conventional fuel fired power plants in the country.

Solar Rooftop Net meter system helps consumers to reduce the electricity consumption in the electricity bill due to net meter.



OBSERVATION

1. It is observed that in the college has installed Solar PV system of 10 kWp for solar energy generation.
2. College has large rooftop space available for Solar PV system installation.

RECOMMENDATION

1. It is recommended that college can installed additional Solar Photovoltaic (PV) system on available rooftop for solar energy generation.

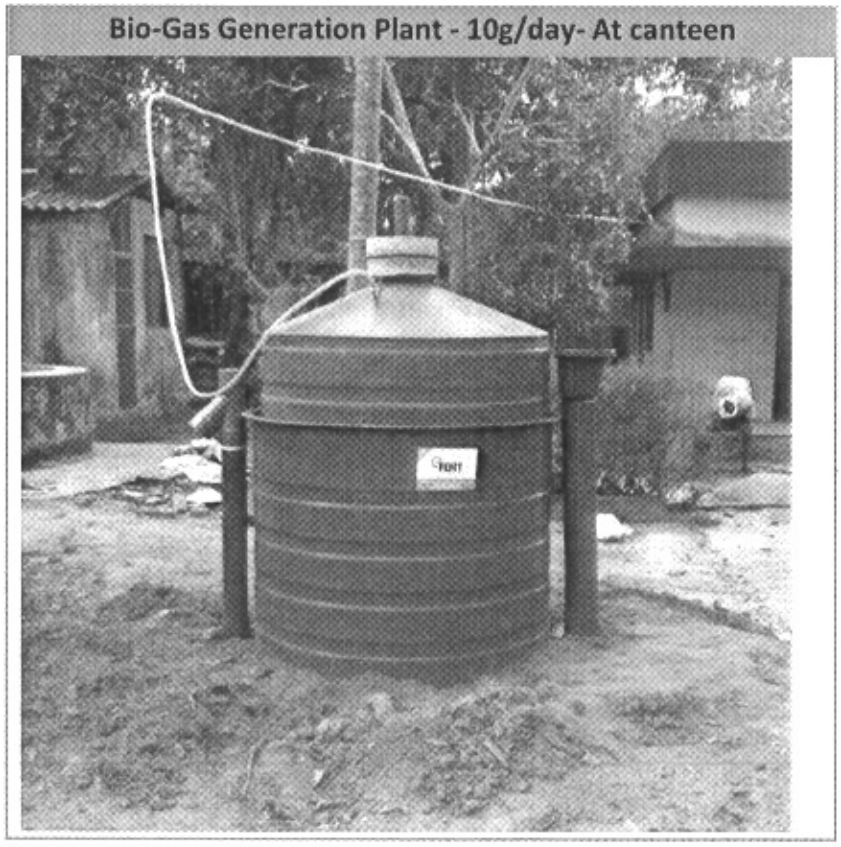
SAVINGS MEASURES

SAVINGS DUE TO SOLAR PV SYSTEM INSTALLATION- MAIN COLLEGE BUILDING

Savings due to Solar PV system additional		
Total Rooftop space available- approximate	2429	sqfoot
Average energy consumption of college	3365	kWh/month
Total capacity of Solar PV system can be installed	22	kWp
Total solar unit generation	2484	kWh/month
Average electricity unit rate	12	INR/kWh
Total cost of Solar PV system	993681.8	INR
Total saving	29810.45	INR/month
Payback period	33.33	months
Payback period	2.78	year
CO2 emission reduction/year	25.34	tonnes of CO2e

2. BIO-GAS PLANT

INTRODUCTION



Biogas is a mixture of gases, primarily consisting of methane and carbon dioxide, produced from raw materials such as agricultural waste, manure, municipal waste, plant material, sewage, green waste or food waste. It is a renewable energy source.

Biogas is produced by anaerobic digestion with anaerobic organisms or methanogen inside an anaerobic digester, bio digester or a bioreactor.

Biogas is primarily methane (CH_4) and carbon dioxide (CO_2) and may have small amounts of hydrogen sulphide (H_2S), moisture and siloxanes. The gases methane, hydrogen, and carbon monoxide (CO) can be combusted or oxidized with oxygen. This energy release allows biogas to be used as a fuel; it can be used in fuel cells and for any heating purpose, such as cooking. It can also be used in a gas engine to convert the energy in the gas into electricity and heat.

Biogas can be compressed after removal of Carbon dioxide, the same way as natural gas is compressed to CNG, and used to power motor vehicles. In the United Kingdom, for example, biogas is estimated to have the potential to replace around 17% of vehicle fuel. It qualifies for renewable energy subsidies in some parts of the world. Biogas can be cleaned and upgraded to

natural gas standards, when it becomes bio-methane. Biogas is considered to be a renewable resource because its production-and-use cycle is continuous, and it generates no net carbon dioxide. As the organic material grows, it is converted and used. It then regrows in a continually repeating cycle. From a carbon perspective, as much carbon dioxide is absorbed from the atmosphere in the growth of the primary bio-resource as is released, when the material is ultimately converted to energy

Biogas in India has been traditionally based on dairy manure as feed stock and these "gobar" gas plants have been in operation for a long period of time, especially in rural India. In the last 2–3 decades, research organisations with a focus on rural energy security have enhanced the design of the systems resulting in newer efficient low cost designs such as the Deenabandhu model.

The Deenabandhu Model is a new biogas-production model popular in India. (Deenabandhu means "friend of the helpless.") The unit usually has a capacity of 2 to 3 cubic metres. It is constructed using bricks or by a ferrocement mixture. In India, the brick model costs slightly more than the ferrocement model; however, India's Ministry of New and Renewable Energy offers some subsidy per model constructed.

Biogas which is mainly methane/natural gas can also be used for generating protein rich cattle, poultry and fish feed in villages economically by cultivating Methylococcus capsulatus bacteria culture with tiny land and water foot print. The carbon dioxide gas produced as by product from these plants can be put to use in cheaper production of algae
oil or spirulina from algaculture particularly in tropical countries like India which can displace the prime position of crude oil in near future. Union government of India is implementing many schemes to utilise productively the agro waste or biomass in rural areas to uplift rural economy and job potential. With these plants, the non-edible biomass or waste of edible biomass is converted in to high value products without any water pollution or greenhouse gas (GHG) emissions.

LPG (Liquefied Petroleum Gas) is a key source of cooking fuel in urban India and its prices have been increasing along with the global fuel prices. Also the heavy subsidies provided by the successive governments in promoting LPG as a domestic cooking fuel has become a financial burden renewing the focus on biogas as a cooking fuel alternative in urban establishments. This has led to the development of prefabricated digester for modular deployments as compared to RCC and cement structures which take a longer duration to construct. Renewed focus on process technology like the Biourja process model has enhanced the stature of medium and large scale anaerobic digester in India as a potential alternative to LPG as primary cooking fuel

OBSERVATION

1. In the college canteen approximately 10kg kitchen waste is generated daily.
2. Currently there is no any bio gas plant for generation of bio gas in the college.

RECOMMENDATION

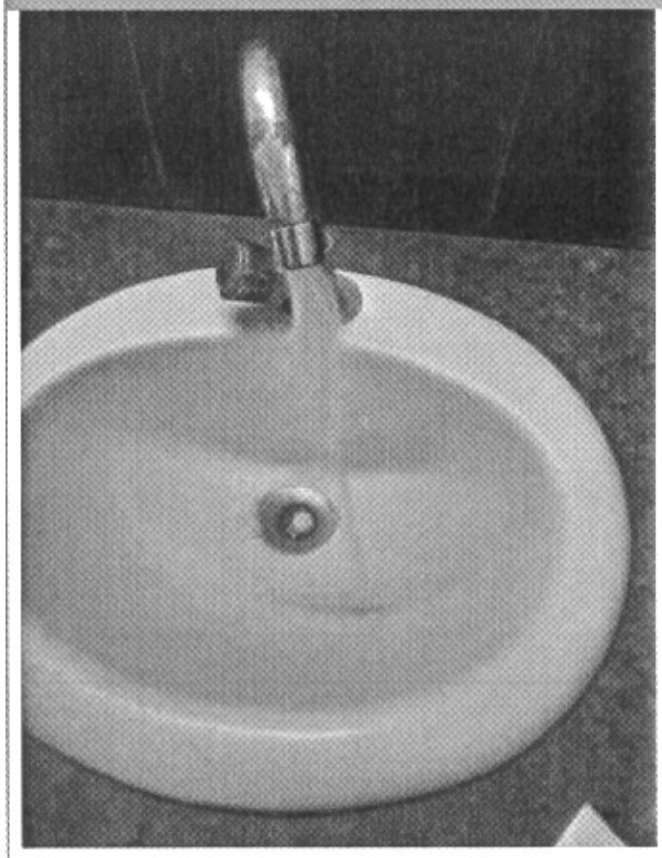
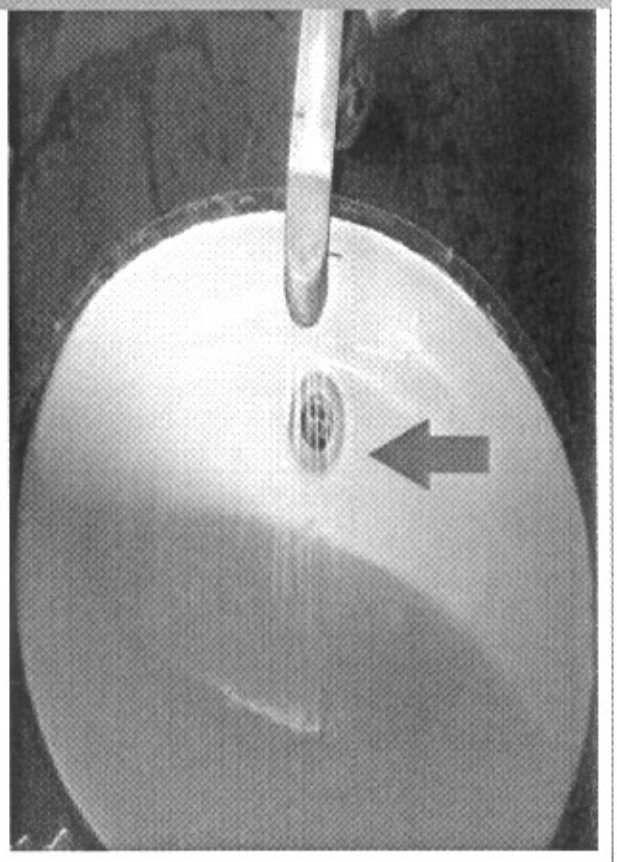
1. It is recommended that installed the small capacity of bio gas plant at college canteen for production of bio gas from kitchen waste generated daily.
2. Produced bio gas can be used for small purposes in the canteen instead of LPG which saves monthly approximate 1 cylinders of INR 950/-

SAVINGS

Saving due to Bio gas plant		
Capacity of bio gas plant	10	kg/day
Waste generated	10	kg/day
Approximate bio gas generation	0.4	m3/day
Approximate bio gas generation	12	m3/month
Equivalent LPG gas saved	18	kg/month
Approximate LPG cylinder saved	0.9	nos
Cost saved	947.37	INR/month

ENERGY CONSERVATION BY SAVING OF WATER

TAP WATER REDUCER

Conventional Tap water system	Tap water system with Reducer
	
Existing tap water system uses more water while during purpose of washing of utensils, hands etc in college.	Used reducer to tap water for purpose of washing of utensils, hands etc which reduces flow of water and ultimately saves the water.
⊘	√

RECOMMENDATION

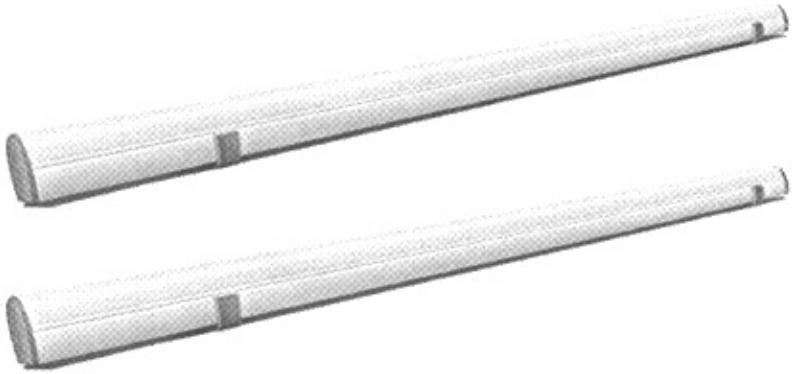
It is recommended that to use water reducer for water taping for save the water.

ANNEXTURE

ENERGY EFFICIENT FANS

ATOMBERG TECHNOLOGIES	
	28 watts
	18watts or 8 watts as per size and load

ENERGY EFFICIENT LIGHTING

LED Lightings	
	18 watts, 9 watts, 5 watts Companies: 1. Wipro 2. Osram 3. Syska 4. Philips etc
	
	Motion/Heat sensor bulbs Companies: 1. Orient electric 2. Halonix etc

ENERGY EFFICIENT INVERTER AC

ENERGY EFFICIENT INVERTER AC	
	**Companies:** 1. Daikin 2. Mitsubishi Electric 3. LG etc
	

GREEN & ENVIRONMENT AUDIT REPORT

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CERTIFICATE

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Verified and Certified that

YCLC
ज्ञानं परमं बलम्

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HAS CARRIED OUT

GREEN (ENVIRONMENT) AUDIT

AS PER GUIDANCE LAID DOWN IN THE
INDIAN STANDARDS AND CODES
IN 2021-22

This certificate is valid for 3 years from 2021-22 to 2023-24

Vinay Mulay
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ACKNOWLEDGEMENT AND CONCEPT

Enerfuture Technology Private Limited thanks the management of Yashwantrao Chavan Law College, Pune for assigning this important work of Green and Environment Audit of Yashwantrao Chavan Law College, Pune

Green audit is defined as a formal examination of practices adopted and their effects on the environment, by an organization. It is also widely known as Environmental Audit.

The aim of the Green Audit is to review the overall environment management systems. Depending on the types of standards and the focus of the audit, there are different types of environmental audits.

Organizations now recognize the importance of environmental matters and accepts that their environment performance should be scrutinized to understand its impact and to take remedial measures to lessen it.

Environmental auditing is used to:

1. Investigate
2. Understand and
3. Identify

These are then used to help in improving existing human activities, with the aim of reducing the adverse effects of these activities on the environment.

An environment auditor studies an organization's environment effects in a systematic and documented manner and produces an environmental audit report.

Green audit for an educational institution mainly examines the following systems

1. Renewable/ green energy usage
2. Water management
3. Biodiversity
4. Health and safety management
5. Sanitation management
6. Adopted Green practices

Contribution of college's team is equally important in this venture. Team of technical experts from Enerfuture Technology Private Limited is grateful to all the following personnel of Yashwantrao Chavan Law College, Pune for their kind cooperation, furnishing required data, analysis report and support offered during our visit.

Name	Designation
Ms Dr Subhada Gholap	Principal
Mr. Pramod Phadtare	Office Superintendent
Mr Ravindra Patil	Assistant professor

We are also thankful to the other staff members who were actively involved while taking measurements and conducting field study.

STUDY TEAM

Sr No	Name	Qualification
1	Mr. Chetan Nemade	M.Tech (Energy Studies), Advance Diploma in Industrial Safety (ADIS), LLB, BEE Certified Energy Manager
2	Mr Vinay Mulay	M.Tech (Energy Studies), ISO 50001 Lead Auditor, BEE Accredited Energy Auditor
3	Mr YogeshKuwar	M.Tech (Energy Studies), IGBC IGBC Accredited Professional, Post Graduate Diploma in Environmental law and Policy (PGDELP), BEE Certified Energy Manager
4	Mr Prasad Kalal	B.E Electrical, BE (Electrical), Electrical Supervisor(51242), Electrical Contractor(37364)
5	Mr Prashant Shinde	B.E Mechanical, IGBC Accredited Professional, Certified Energy Auditor

LIST OF INSTRUMENTS USED

1. Lux meter (Meco)
2. TDS meter
3. CO2 meter
4. Air quality measure meter
5. Sound dB meter

CONTENTS

EXCECUTIVE SUMMARY

Sr No	Location	Area	Objective/Purpose	Recommendation/Status
1	College building	Solar Photovoltaic System- 10Wp	To generate electrical energy by renewable sources and reduce the CO2 emissions	Implemented
2	College building	Additional Solar Photovoltaic System- 22 Wp	To generate electrical energy by renewable sources and reduce the CO2 emissions	Can be Implemented
3	College hostel building	Solar Water Heater System	To generate hot water for hostel use to save the electricity and reduce the CO2 emissions	Implemented
4	College canteen	Bio-Gas generation plant- 10kg/day	Utilised organic food generated in the hostel mess to generate bio-gas for cooking purpose. This saves conventional fuel LPG and ultimately reduce the CO2 and Greenhouse gases emissions	Can be Implemented
5	College building	Tap water reducers	To save the water	Can be Implemented
		Hands free water tap system	This saves the water and also good for personal health protection to avoid frequent hand touching to water taps.	Can be Implemented
6	College building/campus	Rain water harvesting	Save water. Increases the groundwater recharge.	Implemented
7	College buildings/campus	Air Comfort/ Quality	Air quality for human being comfort	Marginally acceptable
8	College buildings/campus	Sound Comfort/ Quality	Sound quality or comfort for human being comfort	Within permissible limits

9	College buildings/campus	Daylight Comfort/Illumination	Daylight illumination for human being comfort	**Within permissible limits**
10	College buildings/campus	Health and Safety Management	Health facility	**Ok**
			Electrical safety- electrical wiring, its loose connections etc , unwanted materials are placed in electrical panel rooms	**Need to be remove**
			Fire safety- number of fire extinguishers are placed in college campus	**OK**
			Fire safety- Maintenance validity of fire extinguishers are updated.	**OK**
			Unwanted material placed in college campus	**OK**
11	College buildings/campus	No vehicle day	Save the conventional fuel and reduces the CO2 emissions.	**Implemented**
12	College buildings/campus	Waste management- Solid waste	Reduce the CO2 emissions by recycling of solid waste	**Regularly implemented and maintained every month.**
13	College buildings/campus/other city area	Tree plantation/ Green belt cover	To increase the forest cover. Reduce the Air, Noise pollution, reduce CO2 emissions etc	**Regularly conducted by college**
14	College buildings/campus/other city area	Cleanliness drive and awareness campaign or poster competitions etc	To create awareness among students as well as in society/community.	**Regularly conducted by college**

15	College buildings/campus	Plastic free campaign	Save environment from non-recycling and hazardous materials.	**Regularly conducted by college**

RENEWABLE ENERGY SYSTEMS

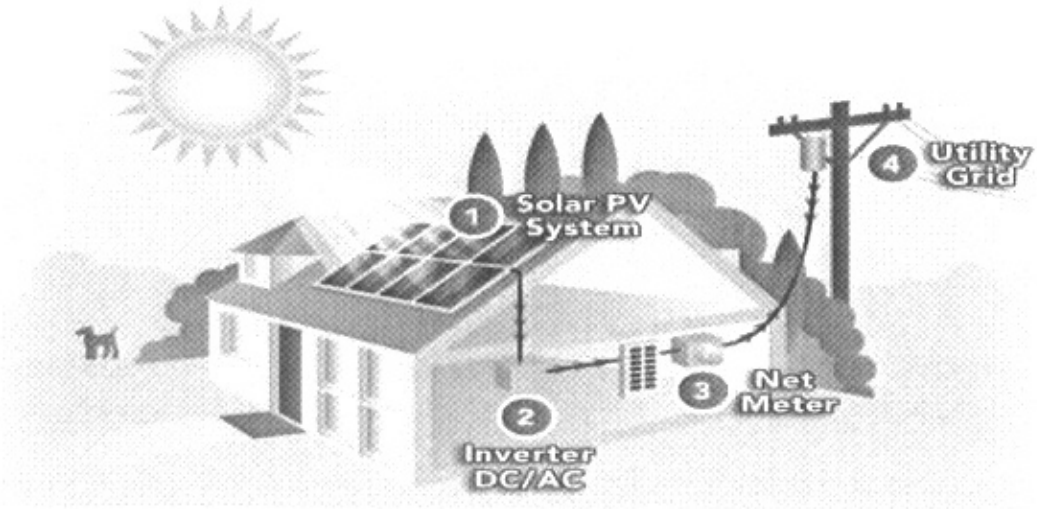
1. SOLAR PHOTOVOLTAIC SYSTEM- ELECTRICAL ENERGY GENERATION

INTRODUCATION

Solar photovoltaic system- with Net meter

Maharashtra Government has new solar energy policy name as "Rooftop Solar with Net Meter system". Maharashtra government encourages to install rooftop solar PV system with net meters at available roof top of consumers. This helps to reduce the burden on existing conventional fuel fired power plants in the country.

Solar Rooftop Net meter system helps consumers to reduce the electricity consumption in the electricity bill due to net meter.



OBSERVATION

1. It is observed that in the college has installed Solar PV system of 10 kWp for solar energy generation.
2. College has large rooftop space available for Solar PV system installation.

RECOMMENDATION

1. It is recommended that college can installed additional Solar Photovoltaic (PV) system on available rooftop for solar energy generation.

SAVINGS MEASURES

SAVINGS DUE TO SOLAR PV SYSTEM INSTALLATION- MAIN COLLEGE BUILDING

Savings due to Solar PV system additional		
Total Rooftop space available- approximate	2429	sqfoot
Average energy consumption of college	3365	kWh/month
Total capacity of Solar PV system can be installed	22	kWp
Total solar unit generation	2484	kWh/month
Average electricity unit rate	12	INR/kWh
Total cost of Solar PV system	993681.8	INR
Total saving	29810.45	INR/month
Payback period	33.33	months
Payback period	2.78	year
CO2 emission reduction/year	25.34	tonnes of CO2e

2. SOLAR WATER HEATING SYSTEM- HOT WATER GENERATION

OBSERVATION

1. In Boy's hostel and Girl's hostel, there are Solar Water Heating systems are installed for the purpose of water heating instead of electric heaters.
2. Total capacity of Solar Water Heating system is 1000 litres/day each.
3. No any auxiliary heaters are used in solar water heating system in the morning.

CO_2 EMISSION REDUCTION

Saving due to solar water heating system		
Hot water temperature	60	deg C
Cold water temperature	25	deg C
Temperature difference(delta T)	35	deg C
Volume of water	2000	lit
Volumetric flow	2000	lit/day
Hot water temperature	60	deg C
Enthalpy of cold water	25.04	kcal/kg
Enthalpy of Hot water	60	kcal/kg
Enthalpy difference	34.96	kcal/kg
Amount of heat used	69920	kcal
Power used for heating	81.30	kW
Monthly kWh	2479.72	kWh/month
Saving kWh	2479.72	kWh/month
Saving kWh	29756.65	kWh/year
Saving Rs	37493.38	Rs/month
CO2 emission reduction/ year	25.29	tonnes of CO2e

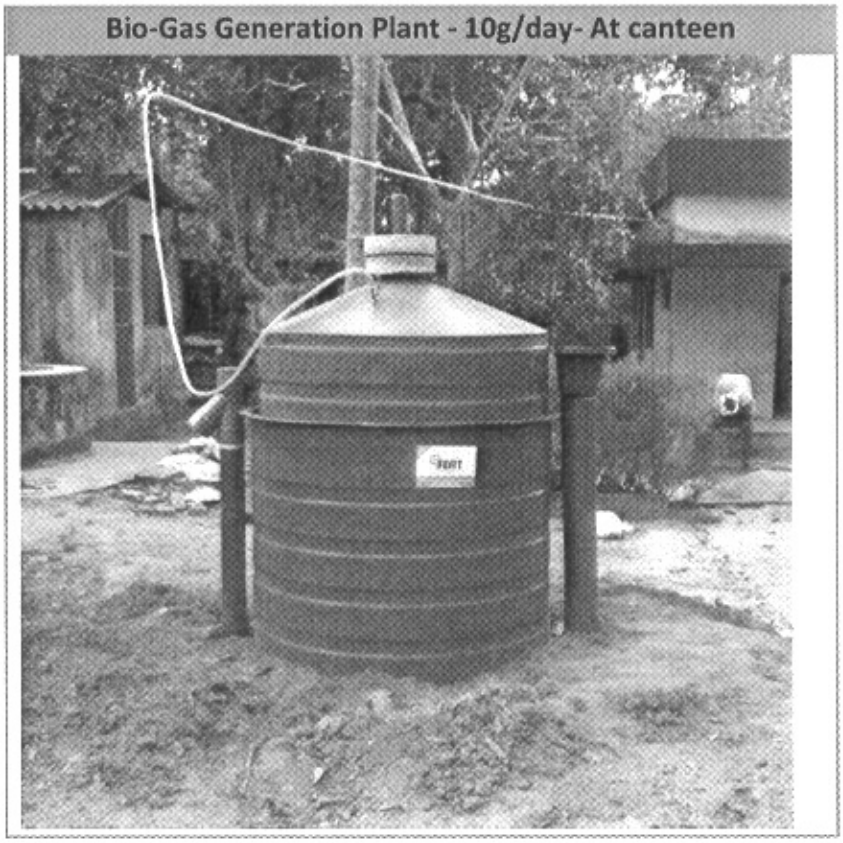
RECOMMENDATION

- It is recommended that regularly clean the solar plates for good efficiency.
- Also do the yearly maintenance of solar flat collectors for scale formation inside the tube to increase and maintain the efficiency of the system.

WASTE MANAGEMENT SYSTEMS

1. BIO-GAS PLANT

INTRODUCTION



Biogas is a mixture of gases, primarily consisting of methane and carbon dioxide, produced from raw materials such as agricultural waste, manure, municipal waste, plant material, sewage, green waste or food waste. It is a renewable energy source.

Biogas is produced by anaerobic digestion with anaerobic organisms or methanogen inside an anaerobic digester, bio digester or a bioreactor.

Biogas is primarily methane (CH_4) and carbon dioxide (CO_2) and may have small amounts of hydrogen sulphide (H_2S), moisture and siloxanes. The gases methane, hydrogen, and carbon monoxide (CO) can be combusted or oxidized with oxygen. This energy release allows biogas to be used as a fuel; it can be used in fuel cells and for any heating purpose, such as cooking. It can also be used in a gas engine to convert the energy in the gas into electricity and heat.

Biogas can be compressed after removal of Carbon dioxide, the same way as natural gas is compressed to CNG, and used to power motor vehicles. In the United Kingdom, for example, biogas is estimated to have the potential to replace around 17% of vehicle fuel. It qualifies for renewable energy subsidies in some parts of the world. Biogas can be cleaned and upgraded to natural gas standards, when it becomes bio-methane. Biogas is considered to be a renewable resource because its production-and-use cycle is continuous, and it generates no net carbon dioxide. As the organic material grows, it is converted and used. It then regrows in a continually repeating cycle. From a carbon perspective, as much carbon dioxide is absorbed from the atmosphere in the growth of the primary bio-resource as is released, when the material is ultimately converted to energy

Biogas in India has been traditionally based on dairy manure as feed stock and these "gobar" gas plants have been in operation for a long period of time, especially in rural India. In the last 2–3 decades, research organisations with a focus on rural energy security have enhanced the design of the systems resulting in newer efficient low cost designs such as the Deenabandhu model.

The Deenabandhu Model is a new biogas-production model popular in India. (Deenabandhu means "friend of the helpless.") The unit usually has a capacity of 2 to 3 cubic metres. It is constructed using bricks or by a ferrocement mixture. In India, the brick model costs slightly more than the ferrocement model; however, India's Ministry of New and Renewable Energy offers some subsidy per model constructed.

Biogas which is mainly methane/natural gas can also be used for generating protein rich cattle, poultry and fish feed in villages economically by cultivating Methylococcus capsulatus bacteria culture with tiny land and water foot print. The carbon dioxide gas produced as by product from these plants can be put to use in cheaper production of algae
oil or spirulina from algaculture particularly in tropical countries like India which can displace the prime position of crude oil in near future. Union government of India is implementing many schemes to utilise productively the agro waste or biomass in rural areas to uplift rural economy and job potential. With these plants, the non-edible biomass or waste of edible biomass is converted in to high value products without any water pollution or greenhouse gas (GHG) emissions.

LPG (Liquefied Petroleum Gas) is a key source of cooking fuel in urban India and its prices have been increasing along with the global fuel prices. Also the heavy subsidies provided by the successive governments in promoting LPG as a domestic cooking fuel has become a financial burden renewing the focus on biogas as a cooking fuel alternative in urban establishments. This has led to the development of prefabricated digester for modular deployments as compared to RCC and cement structures which take a longer duration to construct. Renewed focus on process technology like the Biourja process model has enhanced the stature of medium and large scale anaerobic digester in India as a potential alternative to LPG as primary cooking fuel

OBSERVATION

1. In the college canteen approximately 10kg kitchen waste is generated daily.
2. Currently there is no any bio gas plant for generation of bio gas in the college.

RECOMMENDATION

1. It is recommended that installed the small capacity of bio gas plant at college canteen for production of bio gas from kitchen waste generated daily.
2. Produced bio gas can be used for small purposes in the canteen instead of LPG which saves monthly approximate 1 cylinders of INR 950/-

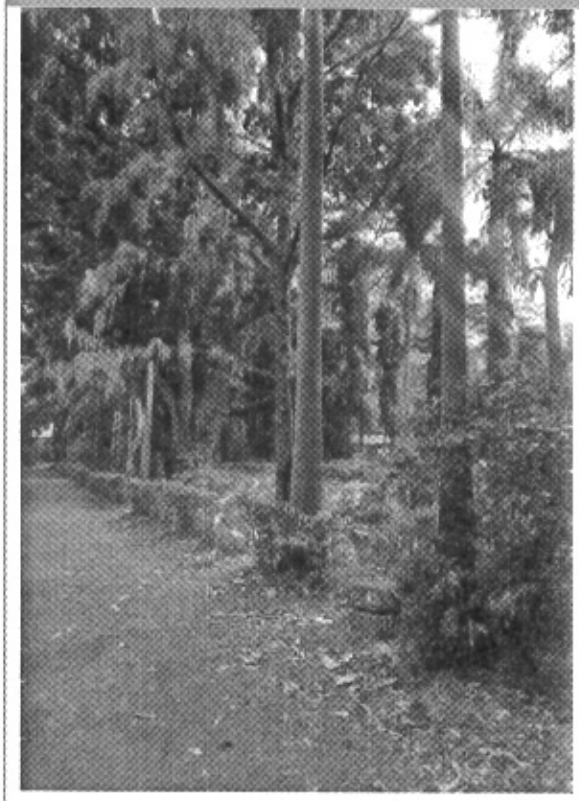
SAVINGS

Saving due to Bio gas plant		
Capacity of bio gas plant	10	kg/day
Waste generated	10	kg/day
Approximate bio gas generation	0.4	m3/day
Approximate bio gas generation	12	m3/month
Equivalent LPG gas saved	18	kg/month
Approximate LPG cylinder saved	0.9	nos
Cost saved	947.37	INR/month

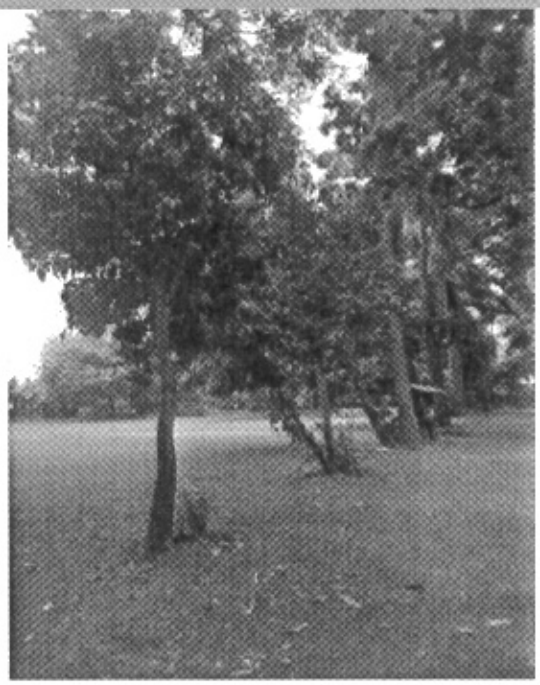
2. TREE PLANTATION/GREEN BELT

OBSERVATION

1. In college premises there are number of trees are planted by college management.
2. College also developed its own horticultural garden as well as nursery.
3. There is substantial amount of waste of tree leaves, shrubs are generated in the college premises.
4. College has initiates the composting plant in the college premises.

Number of Trees	Number of Trees
	

Number of Trees



Number of Trees

Composting pit

WATER QUALITY AND MANAGEMENT SYSTEMS

1. TDS LEVEL OF WATER

INTRODUCTION

The water we drink contains essential salts and minerals like calcium, potassium and magnesium, besides hydrogen and oxygen.

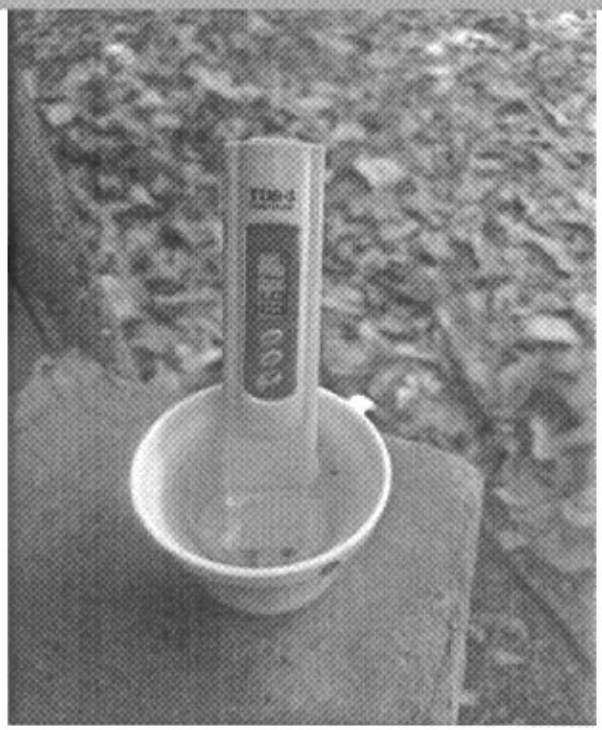
These minerals make up the acceptable levels of TDS (Total Dissolved Solids). Besides, these minerals, the source water contains heavy impurities like arsenic, antimony, lead, iron, etc. It also includes carbonates, fluorides, sulphides and other salts picked along the way. These contaminates enhance the TDS levels to unacceptable levels.

BIS (Bureau of Indian Standards) determines the TDS acceptability levels in drinking water. In India, drinking water can contain TDS up to 500 ppm. BIS has constituted the following table that could clarify the matters further.

TDS level (PPM)	Reasons for acceptability or non-acceptance	
less than 50	Unacceptable	The water with these TDS level does not contain the minerals required for healthy growth
50 - 150	Acceptable	Such TDS levels are usually due to minor industrial contamination
150 - 250	Acceptable	BIS considers water with this TDS levels as the healthiest of all because it is excellent for cardiovascular health
250 - 350	Acceptable	Many areas in India depends on groundwater or bore wells for their water requirements. This water contains essential minerals hence is in acceptance range
350 - 500	Fair	The maximum TDS levels acceptable for human consumption is 500
above 500 - 1200	Not Acceptable	BIS does not recommend ant TS level above 500 as fit for human consumption. However, water with TDS levels up to 1200 can be subjected to purification using Reverse Osmosis(RO) technology to eliminate TDS and bring it down to acceptable levels

OBSERVATION

1. Drinking water requirement of college fulfil by bore well water as well as PMC water
2. Domestic water requirement of college is fulfil by bore well.
3. For drinking water, in college aqua guard systems are installed to reduce the TDS level of water
4. TDS level of drinking water and domestic water as

TDS level of water	
	
Drinking water	**Domestic water**
√- Acceptable	√- Acceptable

	TDS	Acceptability
	ppm	
Drinking water	63	Acceptable
Domestic water	61	Acceptable

OBSERVATION

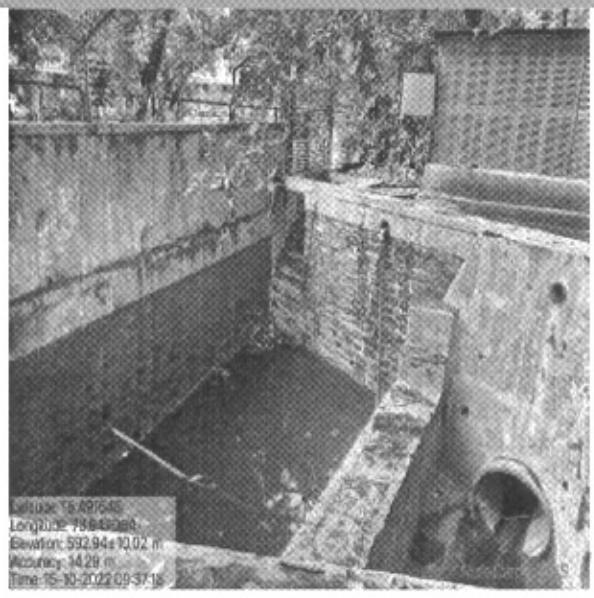
1. TDS level of drinking water and domestic water is within permissible level or acceptable

2. RAIN WATER HARVESTING- COLLEGE PREMISES (SCIENCE BUILDING)

OBSERVATION

1. College has implemented rain water harvesting in the college premises.
2. College has large rooftop space and ground where large amount of rain water is saved during rainy season.
3. College reuses rain water at underground water tank. This water tank is either used for garden purposes.

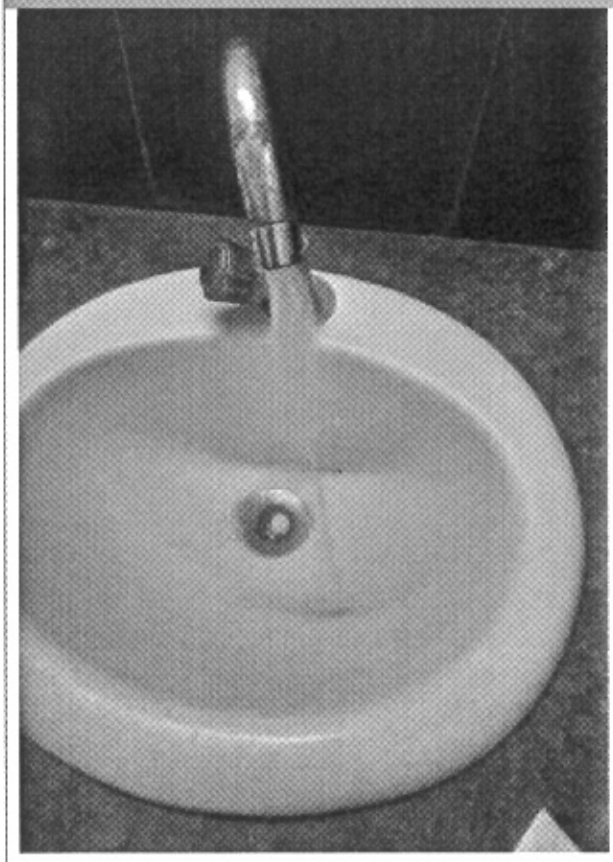
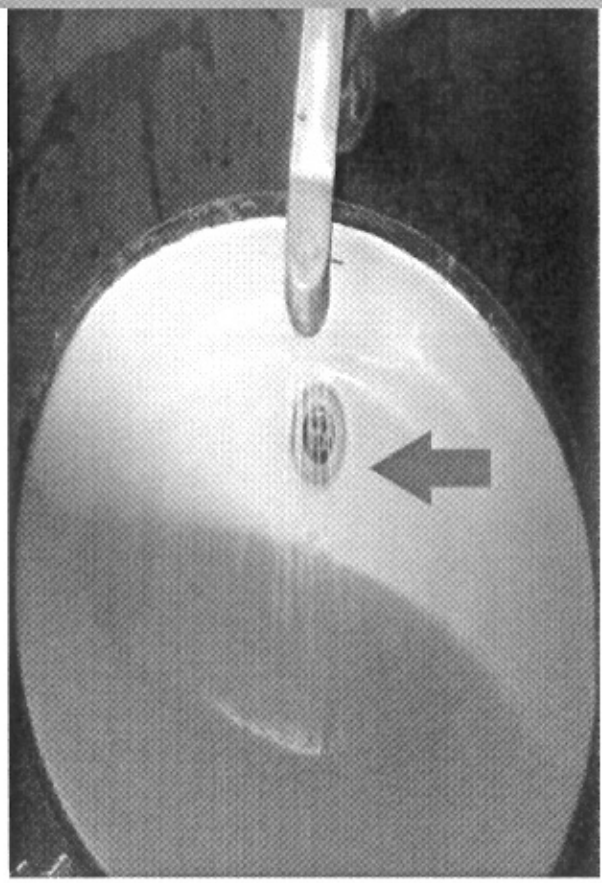
College campus



3. WATER TAP REDUCER

OBSERVATION

1. College has conventional water tap system in the area like bathrooms, toilets, laboratories etc.
2. Conventional water tap system consumes or requires more water for the purpose of washings, cleanings etc.

Conventional Tap water system	Tap water system with Reducer
	
College have installed tap water system at laboratories except other places like bathrooms, kitchen etc	Used reducer to tap water for purpose of washing of utensils, hands etc which reduces flow of water and ultimately saves the water.
⊘	√

RECOMMENDATION

It is recommended that increased the number of water reducers for water taping for save the water in other places like bathrooms, kitchen etc.

AIR QUALITY

INTRODUCTION

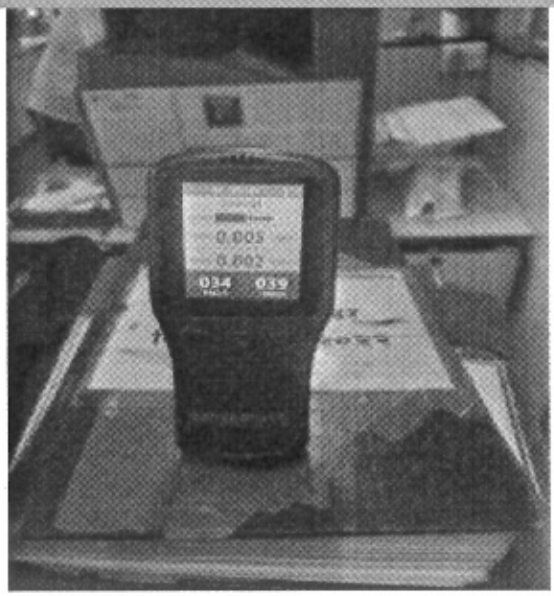
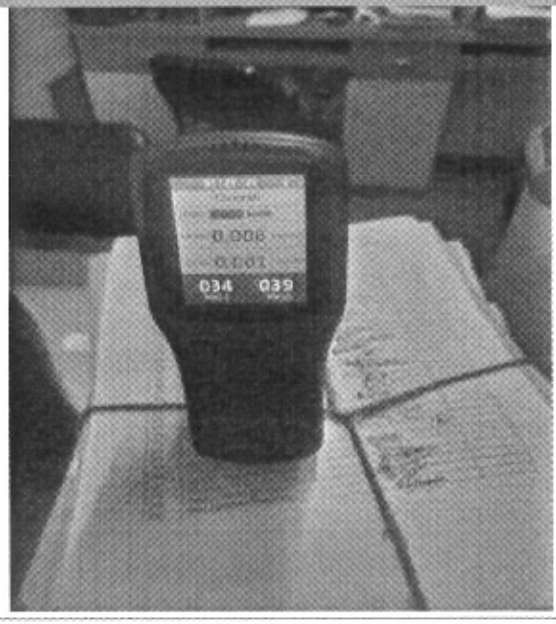
Indoor air is considered to be healthy when the air does not contains contamination in harmful concentrations and is acceptable when the majority of people feel satisfied. A human being breathes about 12,000 litres of air every day and is vital for our health. Exposure to hazardous airborne agents present in indoor space causes adverse effects such as respiratory and cardiovascular diseases, allergy and irritation of the respiratory tract and possibly leads to cancer.

Main source of indoor air pollutants are from outdoor air, household cooking (especially cooking with biomass or frying), tobacco smoking, polluted ambient air, cleaning agents, resuspension of dust during the cleaning activities, construction materials and paints, copy machines and printers as well as other human activities. Ambient air pollutant sources are vehicle emissions, thermal power plants, biomass burnings, construction work, unattended debris, open sewage pipes, fossil fuel based power generation and various industrial processes etc.

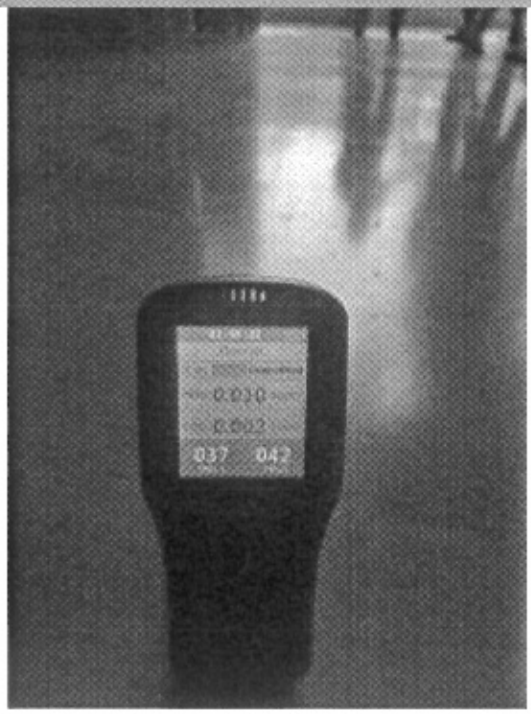
Threshold values for indoor air quality parameters				
Parameters	**Classification**			
	Class A	**Class B**	**Class C**	
Level	**Aspirational**	**Acceptable**	**Marginally acceptable**	
CO2	Ambient+350	Ambient+500	Ambient+700	ppm
PM2.5	<15	<25	<25	ppm
PM10	<50	<100	<100	ppm
HCHO		30		µg/m3
TVOC	<200	<400	<500	µg/m3
Occupational satisfaction	**90**	**80**	-	**%**

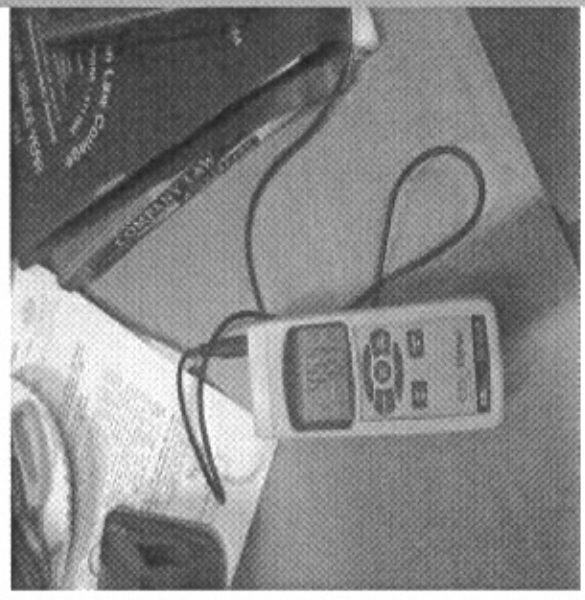
OBSERVATION

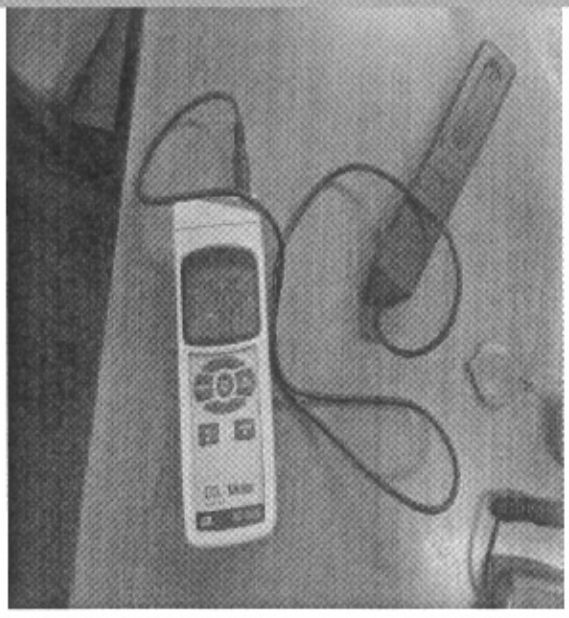
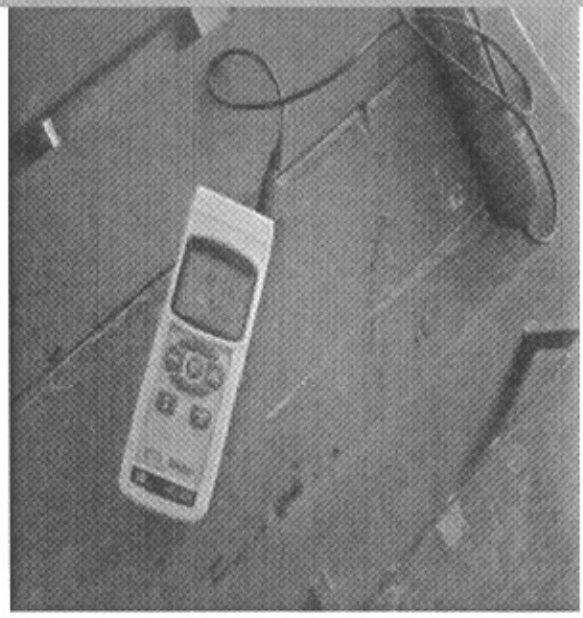
1. In college air quality is at good/ aspirational level.

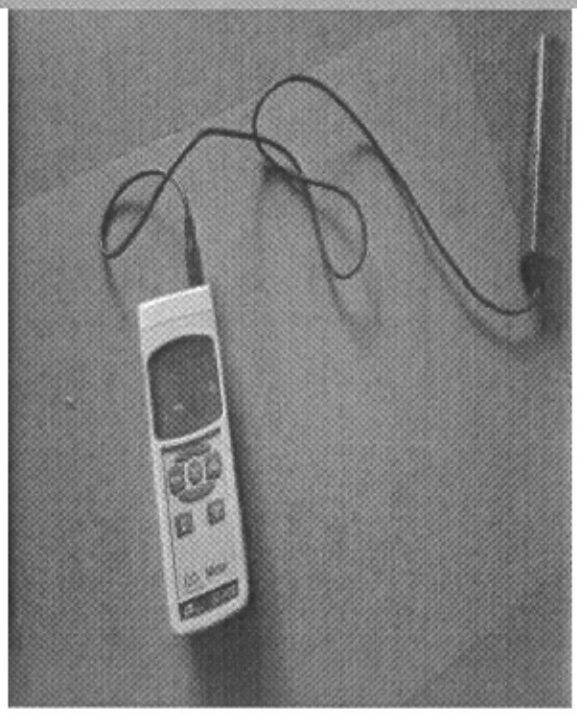
Admin office	Faculty room
	
Marginally acceptable	Marginally acceptable

Library	Class room
	
Marginally acceptable	Marginally acceptable

Passage

Marginally acceptable

Admin office	Faculty room
	
Aspirational	Aspirational

Library	Class room
	
Aspirational	Aspirational

Passage

Aspirational

Location	CO2	PM2.5	PM10	HCHO	TVOC	Level
	ppm	ppm	ppm	ppm	ppm	
Admin office	425	34	39	2	5	Marginally acceptable
Faculty room	455	34	39	1	6	Marginally acceptable
Library	414	36	41	1	7	Marginally acceptable
Class room	435	38	44	0	3	Marginally acceptable I
Passage	382	37	42	2	10	Marginally acceptable

SOUND COMFORT/QUALITY

INTRODUCTION

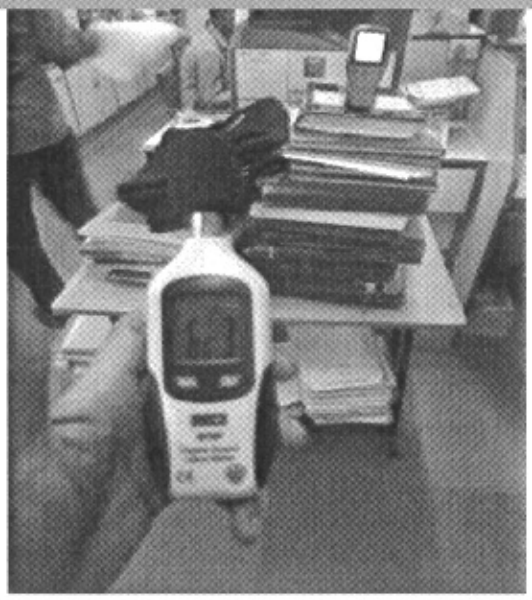
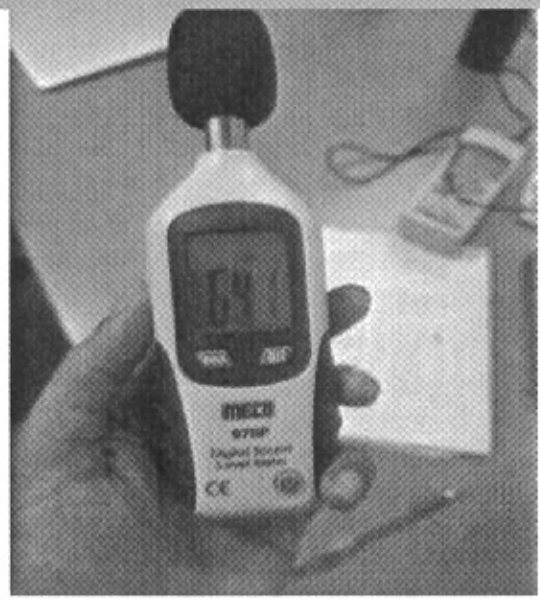
Noise is unwanted sound. Ambient noise is all encompassing noise associated with any given environment and is usually a composite of sounds from many sources near and far. Any abnormal sound which irritates human being is called as noise pollution.

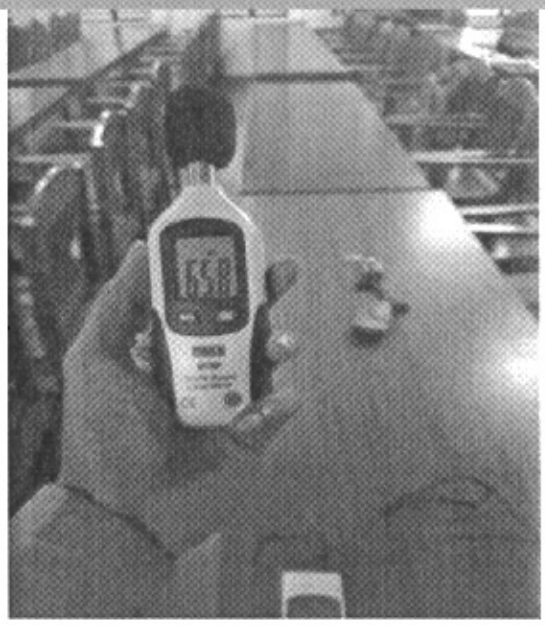
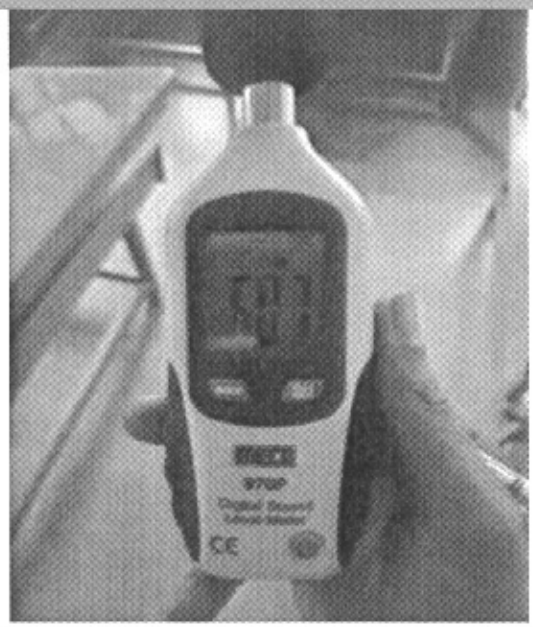
Noise is one of the undesirable products of technological civilization. Admits this civilization wherever we go, noise surrounds us. The roar of traffic, the passage of trains and aeroplanes, the bustle of crowds and the working of industry and the public utilities deafens our ears. Even home is invaded by noise. The noise from whatever source it comes from is undoubtedly, physiologically as well as psychologically harmful. Invading environment in dangerous proportions, it is an invisible but insidious form of pollutant Noise as a potentially harmful pollutant is being recognised as a great nuisance these days affecting the quality of the particularly, in urban areas.

The Environment (Protection) Act, 1986, under Sec. 6 has mentioned "Rules to regulate environment (Protection) Act, 1986, under Sec. 6 has mentioned "Rules to regulate environmental pollution". This section has explained the maximum allowable limits of concentrations of various environmental pollutants (including noise) for different areas.

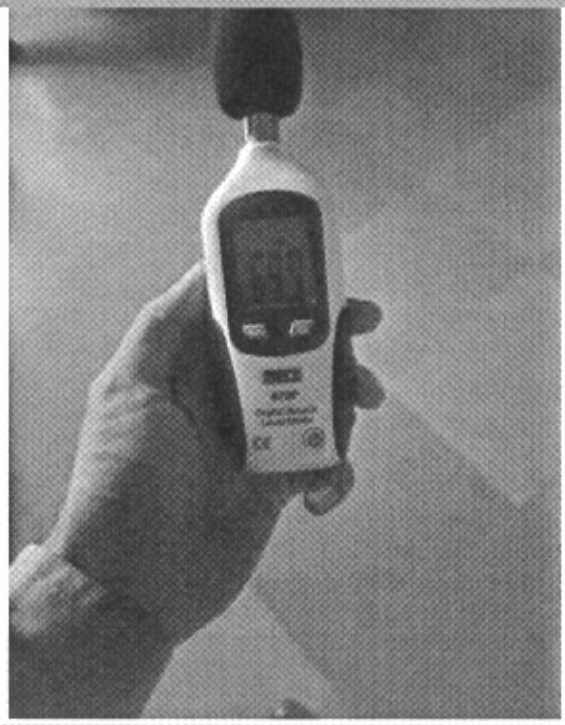
Air quality standards in respect of Noise			
Area code	Category of Area/ Zone	Limits/Levels	
		Day Time	Night Time
A	Industrial area	75	70
B	Commercial area	65	55
C	Residential area	55	45
D	Silence zone	50	40

OBSERVATION

Admin office	Faculty room
	
Marginally acceptable	Marginally acceptable

Library	Class room
	
Marginally acceptable	Marginally acceptable

Passage



Marginally acceptable

Location	Limits	Limits/Levels
	dB	
Admin office	62.3	within permissible limits
Faculty room	64.1	within permissible limits
Library	65.8	within permissible limits
Class room	60.7	within permissible limits
Passage	69.9	within permissible limits

DAY LIGHT ILLUMINATION/COMFORT

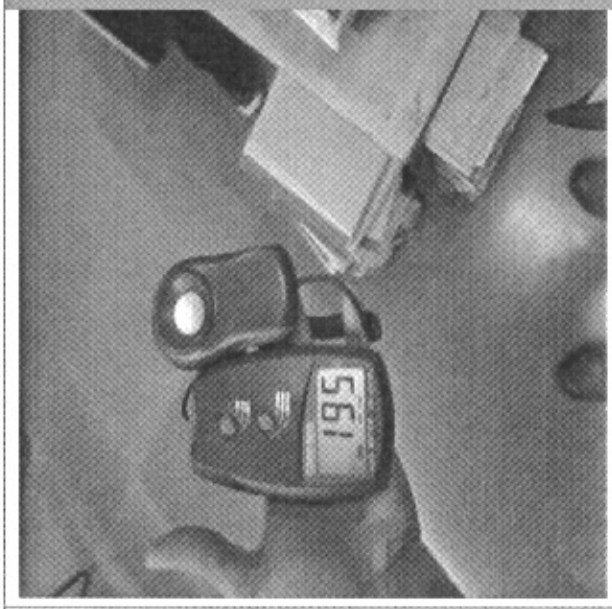
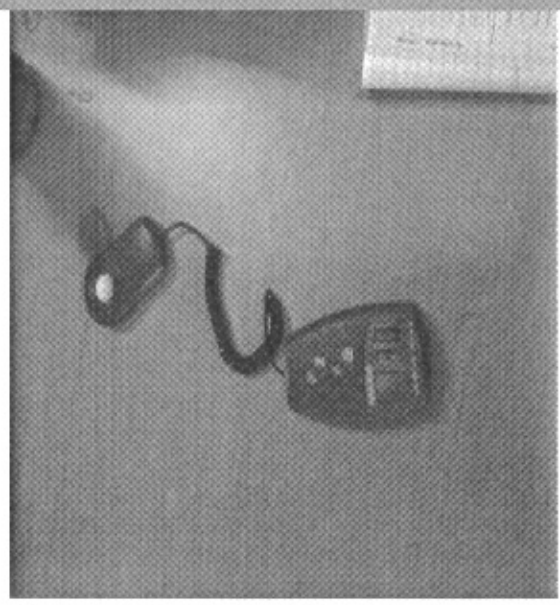
INTRODUCTION

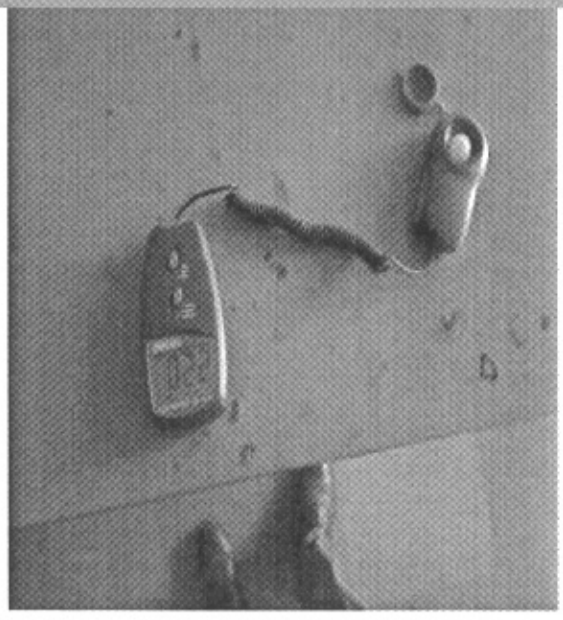
Light has significant impact on many body functions, including the nervous system, circadian rhythms, pituitary gland, endocrine system, pineal gland and alertness as these are affected by different wavelengths of light.

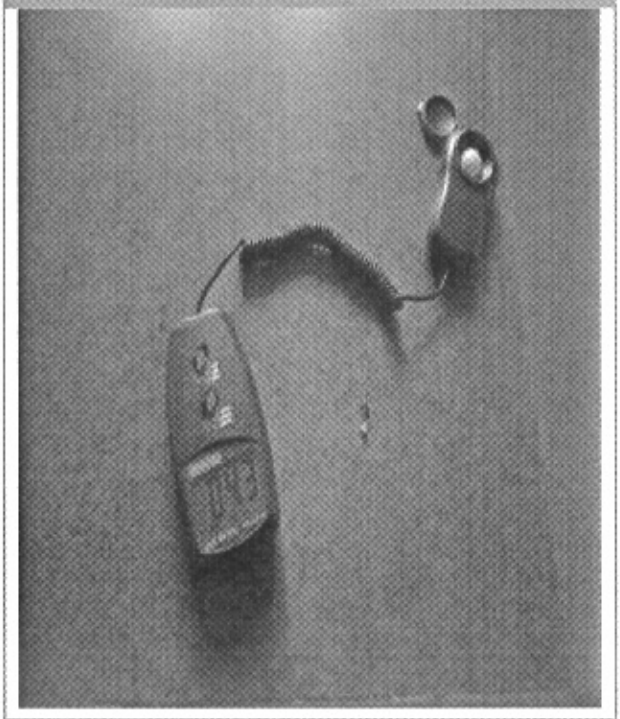
Variations over time in lighting conditions, in terms of intensity, illumination levels, distribution, ambient lighting and colour temperature, can stimulate alertness and well-being of people.

Threshold IL luminance level		
Building type	**Type of space**	**IL luminance**
		Lux
Schools	Classrooms	500
	Corridors	100
	Teachers rooms	300
	Libraries	500
	Offices	300

OBSERVATION

Admin office	Faculty room
	
Marginally acceptable	Marginally acceptable

Library	Class room
	
Marginally acceptable	Marginally acceptable

Passage

Marginally acceptable

Location	IL luminance	Limits/Levels
	Lux	
M. Pharmaceutics lab	*195	within permissible limits
Class room-04 (Pharma-D)	*138	within permissible limits
Server room	*86	within permissible limits
Computer lab	*22	within permissible limits
Class room-1	*43	within permissible limits
* values are measured in daylights and given standard values of lux are with lightings		

HEALTH AND SAFETY MANAGEMENT AND INFRASTRUCTURE

1. COLLEGE INFRASTRUCTURE

INTRODUCTION

College campus comprises of mainly three buildings as main college building and boys and girls hostel.

OBSERVATION

Sr. No.	Locations	Space
1	Main college building	Spacious
2	Seminar hall	Spacious
3	Library & Reading hall	Spacious
4	Toilet Blocks	Spacious
5	Parking Area	Spacious
6	Passage	Spacious
7	Class rooms	Spacious
8	Canteen	Spacious
9	College premises	Spacious
10	Hostels	Spacious

ASSESSMENT OF COLLGE CAMPUS BUILDING INFRASTRUCTURE

Sr No	Locations	Space	Ventilation	Natural Light	Cleanliness	Remark
1	Main college building	Spacious	Good	Good	Good	
2	Seminar hall	Spacious	Good	Good	Good	
3	Library & Reading hall	Spacious	Good	Good	Good	
4	Toilet Blocks	Spacious	Good	Average	Good	
5	Parking Area	Spacious	Good	Good	Good	
6	Passage	Spacious	Good	Good	Good	
7	Class rooms	Spacious	Good	Good	Good	
8	Canteen	Spacious	Good	Partially good	Good	
9	College premises	Spacious	Good	Good	Good	
10	Hostels	Spacious	Good	Good	Good	

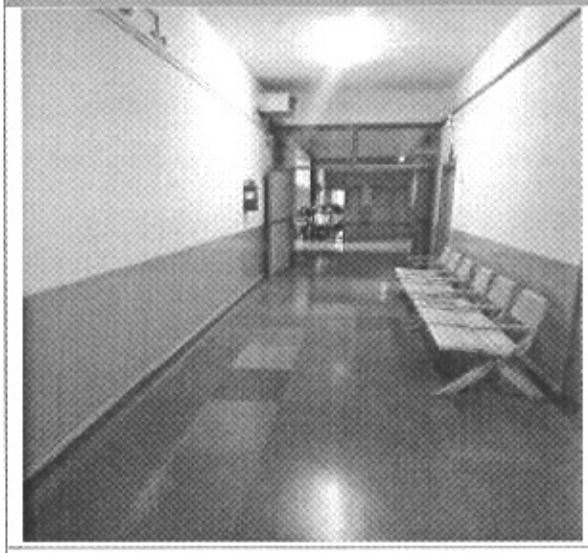
2. HEALTH AND SAFETY MANAGEMENT

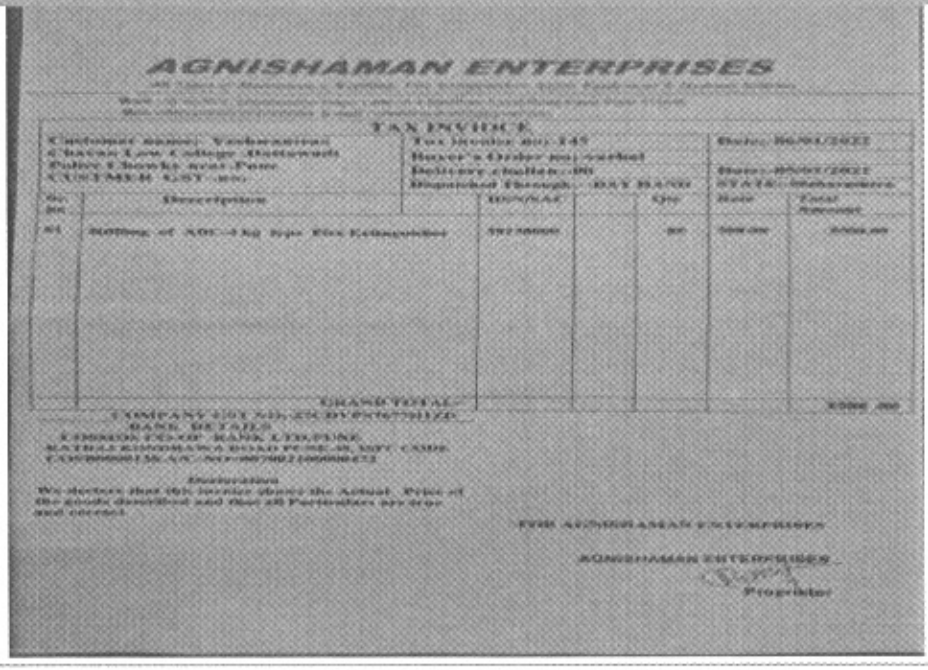
OBSERVATION

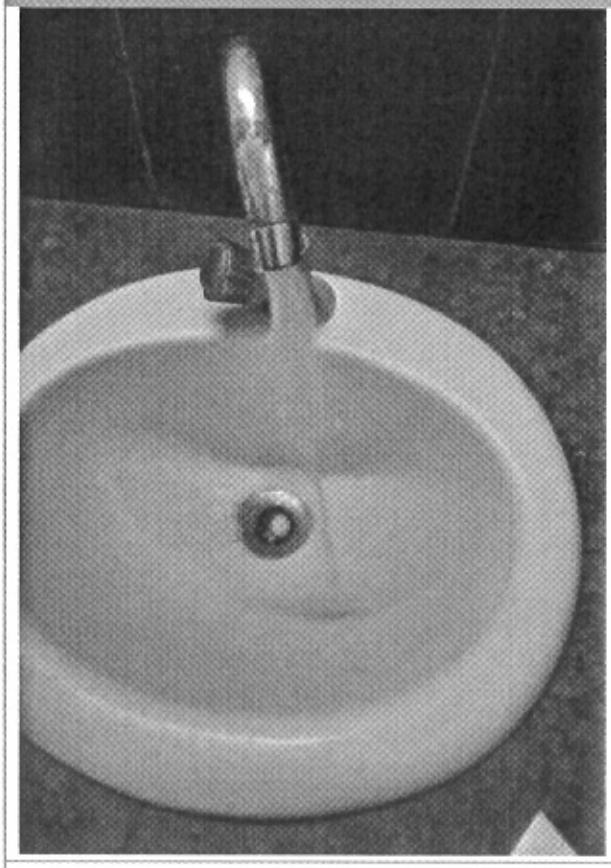
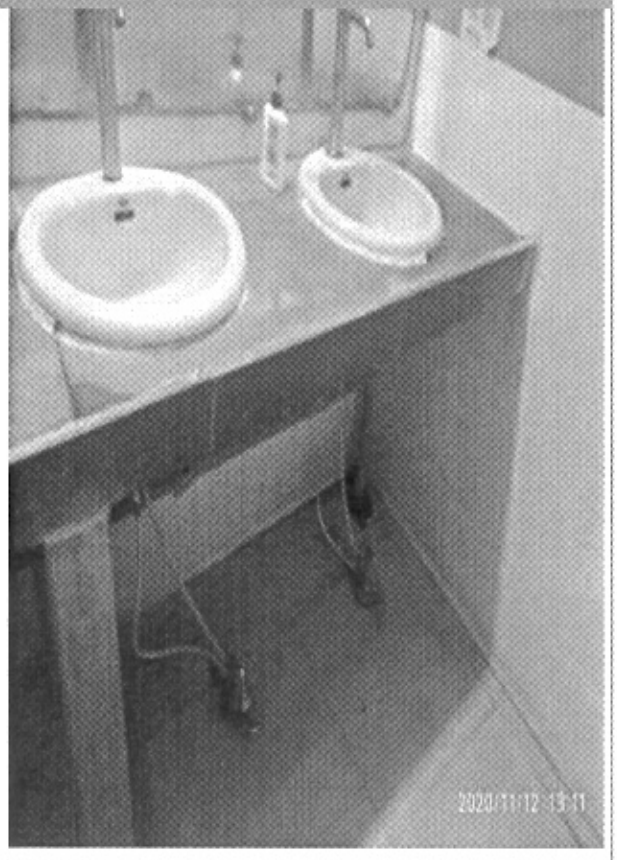
1. Regular cleaning of college campus and toilets is done by the cleaning staff. This involves dusting, floor cleaning and toilets cleanings.
2. Garden and parking area is also kept clean by staffs.
3. Cleaning equipment and washing liquids are provided to the cleaning staff.
4. Medical kits are placed in office.
5. Fire extinguishers are regularly filled and maintained by college.
6. At various palaces in college premises, floors, offices dust bins are placed.

RECOMMENDATION

1. Open wiring, loose connections and not properly addressed cable wiring have been observed in college, that may lead to short circuits as well as from electrical safety it is dangerous. Also panel doors are not closed properly. So it is an urgent repair and corrected.

Fire safety	
Fire extinguishers	Fire extinguishers
	
College has placed number of fire extinguishers at various places in the college campus	College has placed number of fire extinguishers at various places in the college campus
√- Good	√- Good

Fire safety
Fire Extinguishers maintenance

Maintenance validity of fire extinguishers are renewed.
√- Good

Health safety	
Conventional water taping system	Hands free water taping system
	
College have currently conventional water taping system	College can adopts hands free water taping system. This saves the water and also good for personal health protection to avoid frequent hand touching to water taps.

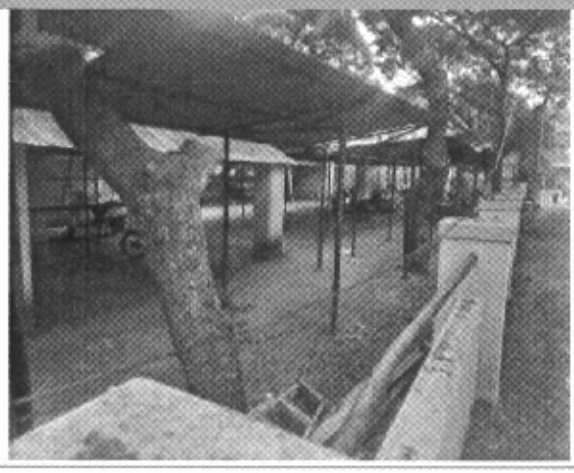
Health safety	
Dust bins	Dust bins
	
College have number of dust bin at various places for disposal of waste.	College have number of dust bin at various places for disposal of waste.

NO VEHICLE DAY INITIATIVE

OBSERVATION

1. Many of the college students and staff use the private or own vehicle to come college.
2. It contributes the CO2 emission due to burning of petrol or diesel in the vehicles.

Vehicles in the college premises



CO2 EMISSION REDUCTION DUE TO NO VEHICLE DAY

Particulars		
Number of vehicles in college premises	250	nos
Average running of vehicle	2	km/vehicle
Average fuel required	250	litres/day
Average cost of fuel	25000	INR/day
Number of days in months	4	nos
Average fuel save	1000	litres/month
Average cost save	100000	INR/month
Average CO2 emission reduction per month	0.67	tonnes of CO2e
Average CO2 emission reduction per year	**8.04**	**tonnes of CO2e**

No vehicle day initiative

अखिल भारतीय मराठा शिक्षण परिषद

Registered under Societies Registration Act XXI of 1860
& Bombay Public Trust Act XXIX of 1950
Reg. No. F-75 (P)

स्थापना : १९०७ - शिवशक : ३३४

अध्यक्ष
मा. शरदराव गोविंदराव पवार

उपाध्यक्ष
मा. अजितदादा अनंतराव पवार
मा. अभिकांत शंकरराव सुतार

जनरल सेक्रेटरी
मा. प्रमिला भागवतराव गायकवाड

जॉईंट सेक्रेटरी
मा. संदीप सुदामराव कदम
मा. भगवानराव बाबुराव साळुंखे

खजिनदार
मा. विजयसिंह यशवंतराव जेधे

अध्यक्ष, नियामक मंडळ
मा. संजय बाबुराव शेटे

अध्यक्ष, पुणे विभागीय कार्यकारी समिती
मा. अभिमन्यु दोधाजी सूर्यवंशी

दि. २२/८/२०१८

सूचना

अखिल भारतीय मराठा शिक्षण परिषदेचा परिसर हा ६७ एकरचा असून विविध प्रकारच्या वृक्षांमुळे सुंदर दिसतो. बदलत्या पर्यावरणाचा विचार करता काही उपक्रम राबविणे गरजेचे असून पर्यावरण संरक्षण करणेही गरजेचे आहे. तसेच त्याविषयी विद्यार्थ्यांना पर्यावरण संरक्षणाचा चांगला संदेश देण्यासाठी संस्थेने दोन महत्वाचे निर्णय घेतले आहेत.

१. संस्थेच्या परिसरातील सगळ्या महाविद्यालयांनी कमीत कमी प्लॅस्टिकचा वापर करणे व प्रत्येक महिन्याला परिसरातील प्लॅस्टिक गोळा करण्याची मोहीम हाती घेणे.

२. परिसरातील सगळ्या महाविद्यालयांनी आपल्या विद्यार्थ्यांना सूचित करून महिन्यातून एक दिवस 'नो वेहिकल' (विनावाहन दिवस) दिवस पाळण्यात यावा.

A.B.M.S. PARISHAD PUNE-9

सरचिटणीस
अखिल भारतीय मराठा शिक्षण परिषद पुणे

प्रत- श्री शाहू मंदिर महाविद्यालय पुणे
यशवंतराव चव्हाण विधी महाविद्यालय पुणे
अनंतराव पवार कॉलेज ऑफ इंजिनियरिंग पुणे
अनंतराव पवार कॉलेज ऑफ आर्किटेक्चर पुणे
श्री नामदेवराव सूर्यवंशी औद्योगिक प्रशिक्षण संस्था पुणे

THER ENERGY EFFICIENT, GREEN, HEALTH, WASTE PRACTICES BY THE COLLEGE MANAGEMENT

1. SOLID WASTE MANAGEMENT (SCRAPS LIKE PLASTIC, PAPER ETC)/ E-WASTE MANAGEMENT

INTRODUCTION

College have good policy and maintained the record for solid waste generated in the college like old newspapers, books, scrap boxes, etc.

E-WASTE MANAGEMNT

Electronic waste or e-waste describes discarded electrical or electronic devices. Used electronics which are destined for reuse, resale, salvage, recycling, or disposal are also considered e-waste. Informal processing of e-waste in developing countries can lead to adverse human health effects and environmental pollution.

Electronic scrap components, such as CPUs, contain potentially harmful components such as lead, cadmium, beryllium, or brominates flame retardants. Recycling and disposal of e-waste may involve significant risk to health of workers and communities in developed countries and great care must be taken to avoid unsafe exposure in recycling operations and leaking of materials such as heavy metals from landfills and incinerator ashes.

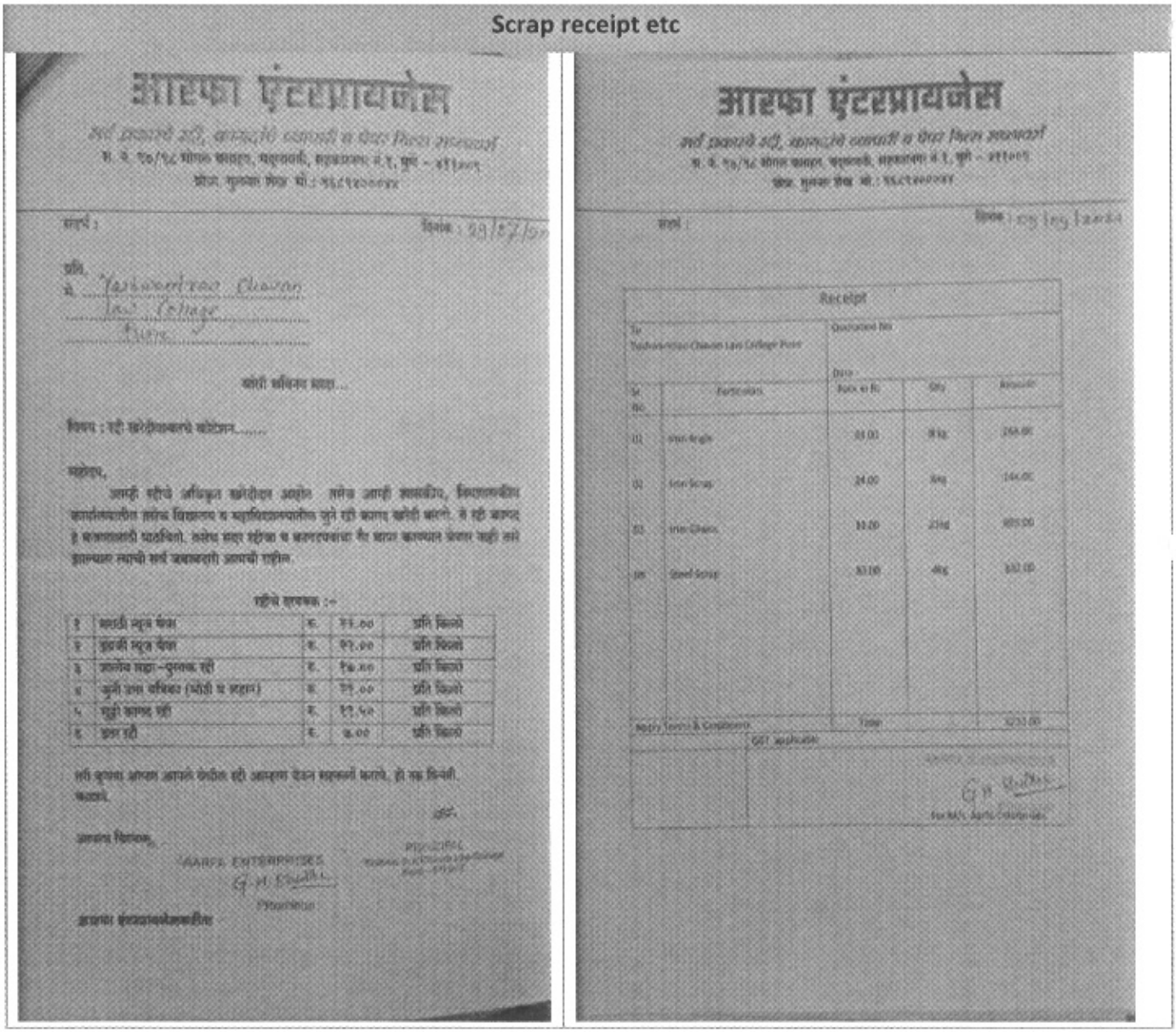
The environmental impact of the processing of different electronic waste components

E-Waste Component	Process Used	Potential Environmental Hazard
Cathode ray tubes (used in TVs, computer monitors, ATM, video cameras, and more)	Breaking and removal of yoke, then dumping	Lead, barium and other heavy metals leaching into the ground water and release of toxic phosphor
Printed circuit board (image behind table – a thin plate on which chips and other electronic components are placed)	De-soldering and removal of computer chips, open burning and acid baths to remove metals after chips are removed	Air emissions and discharge into rivers of glass dust, tin, lead, brominated dioxin, beryllium cadmium, and mercury
Chips and other gold plated components	Chemical stripping using nitric and hydrochloric acid and burning of chips	PAHs, heavy metals, brominated flame retardants discharged directly into rivers acidifying fish and flora. Tin and lead contamination of surface and groundwater. Air emissions of brominated dioxins, heavy metals, and PAHs
Plastics from printers, keyboards, monitors, etc.	Shredding and low temp melting to be reused	Emissions of brominated dioxins, heavy metals, and hydrocarbons
Computer wires	Open burning and stripping to remove copper	PAHs released into air, water, and soil.

OBSERVATION

1. College has given solid waste generated like papers, metal scrap, garden waste etc to the authorised recycle for proper channelling the solid waste.
2. This helps to reduce the CO2 emission reduction due to recycling of the solid waste.
3. Currently college also given E-waste to the authorised recycler viz Agasti computer, Pune
4. College regularly giving scrap to the authorised dealer viz Arpha enterprises, Pune
5. Other waste is managed and given to the Pune Municipal corporation

Scrap receipt etc



Scrap receipt etc

A.B.M.S. Parishad's

Diploma

YASHWANTRAO CHAVAN LAW COLLEGE

Parvati Ramana, Pune - 411 009.

RECEIPT

Receipt No. 2233 Date 9/9/2024

Received with thanks from Mr/Miss Aarfa Enterprises, Pune

a sum of Rupees Twenty Two Thousand One Hundred Thirty only

on account of Sale of Rabbi (Old News paper & Scrap)

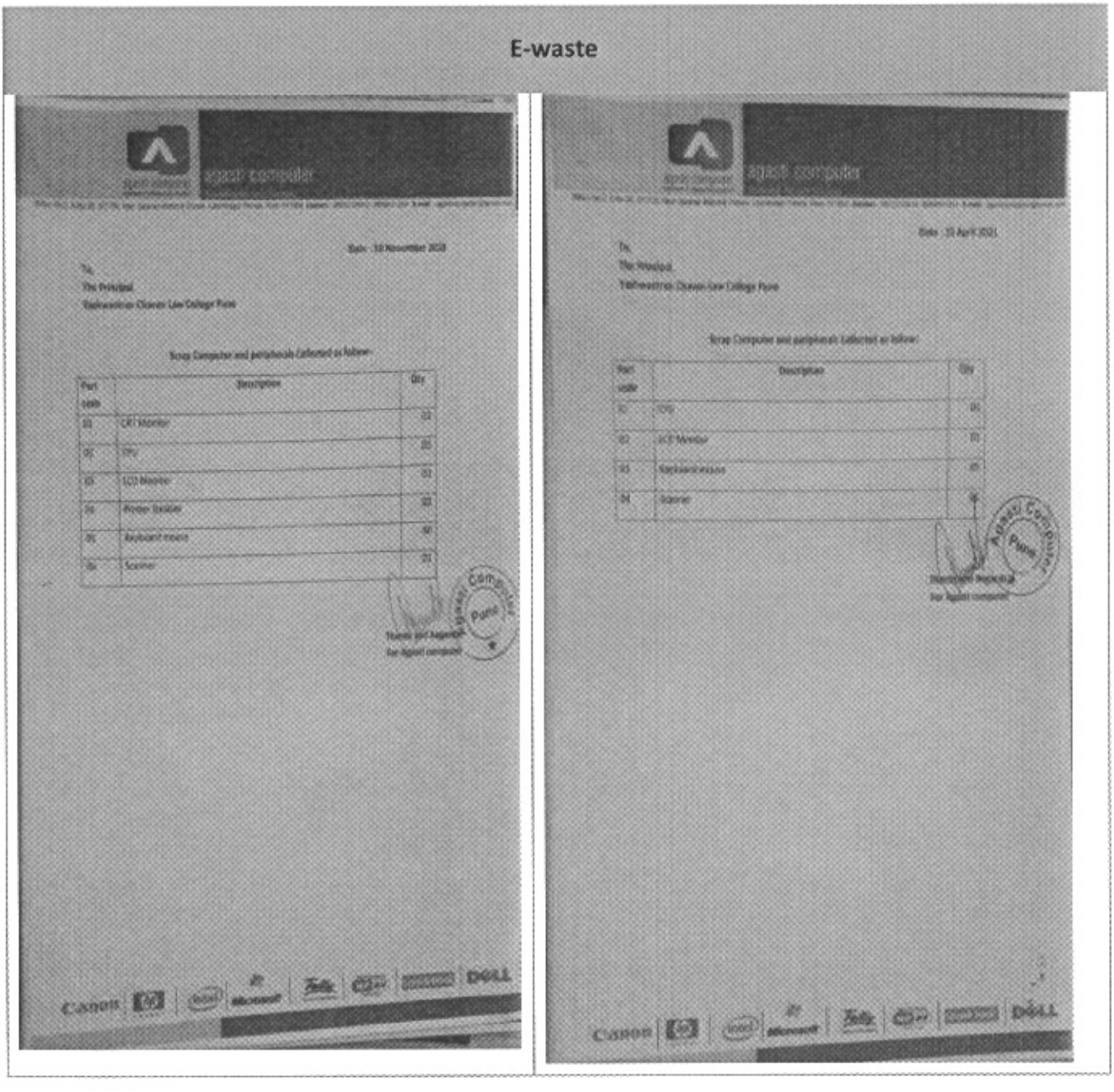
by Cash/Cheque No. Cash drawn on

Rs. 22,130/-

(Subject to realization of cheque)

Receiving Clerk's Signature

E-waste



No plastic initiative

अखिल भारतीय मराठा शिक्षण परिषद

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Reg. No. F-75 (P)
पुणे कार्यालय : [illegible]
मुंबई कार्यालय : [illegible]
स्थापना : १९०७ - शिवशक : [illegible]

अध्यक्ष
मा. शरदराव गोविंदराव पवार

उपाध्यक्ष
मा. अजितदादा अनंतराव पवार
मा. शशिकांत शंकरराव सुतार

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मा. संजय बाबुराव शेटे

अध्यक्ष, पुणे विभागीय कार्यकारी समिती
मा. अभिमन्यु [illegible] सूर्यवंशी

१२ - २०१८/२०१८

सूचना

अखिल भारतीय मराठा शिक्षण परिषदेचा परिसर हा ६७ एकरचा असून विविध प्रकारच्या वृक्षांमुळे सुंदर दिसतो. बदलत्या पर्यावरणाचा विचार करता काही उपक्रम राबविणे गरजेचे असून पर्यावरण संरक्षण करणेही गरजेचे आहे. तसेच त्याविषयी विद्यार्थ्यांना पर्यावरण संरक्षणाचा चांगला संदेश देण्यासाठी संस्थेने दोन महत्वाचे निर्णय घेतले आहेत.

१. संस्थेच्या परिसरातील सगळ्या महाविद्यालयांनी कमीत कमी प्लॅस्टिकचा वापर करणे व प्रत्येक महिन्याला परिसरातील प्लॅस्टिक गोळा करण्याची मोहीम हाती घेणे.

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A.B.M.S. PARISHAD PUNE-9

सरचिटणीस
अखिल भारतीय मराठा शिक्षण परिषद पुणे

प्रत- श्री शाहू मंदिर महाविद्यालय पुणे
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श्री नामदेवराव सूर्यवंशी औद्योगिक प्रशिक्षण संस्था पुणे

2. TREE PLANTATION, SOIL CONSERVATION ETC

INTRODUCTION

Tree-planting is the process of transplanting tree seedlings, generally for forestry, land reclamation, or landscaping purpose

In silviculture the activity is known as reforestation, or afforestation, depending on whether the area being planted has or has not recently been forested. It involves planting seedlings over an area of land where the forest has been harvested or damaged by fire, disease or human activity. Tree planting is carried out in many different parts of the world, and strategies may differ widely across nations and regions and among individual reforestation companies. Tree planting is grounded in forest science, and if performed properly can result in the successful regeneration of a deforested area. Reforestation is the commercial logging industry's answer to the large-scale destruction of old growth forests, but a planted forest rarely replicates the biodiversity and complexity of a natural forest.[citation needed]

Because trees remove carbon dioxide from the air as they grow, tree planting can be used as a geoengineering technique to remove CO
2 from the atmosphere. Desert greening projects are also motivated by improved biodiversity and reclamation of natural water systems, but also improved economic and social welfare due to an increased number of jobs in farming and forestry.

Canopies in tropical and temperate forests can be important habitats for many animals and plants. A dense canopy cover will let little light reach the ground and will lower temperatures.
The canopy protects the ground from the force of rainfall and makes wind force more moderate

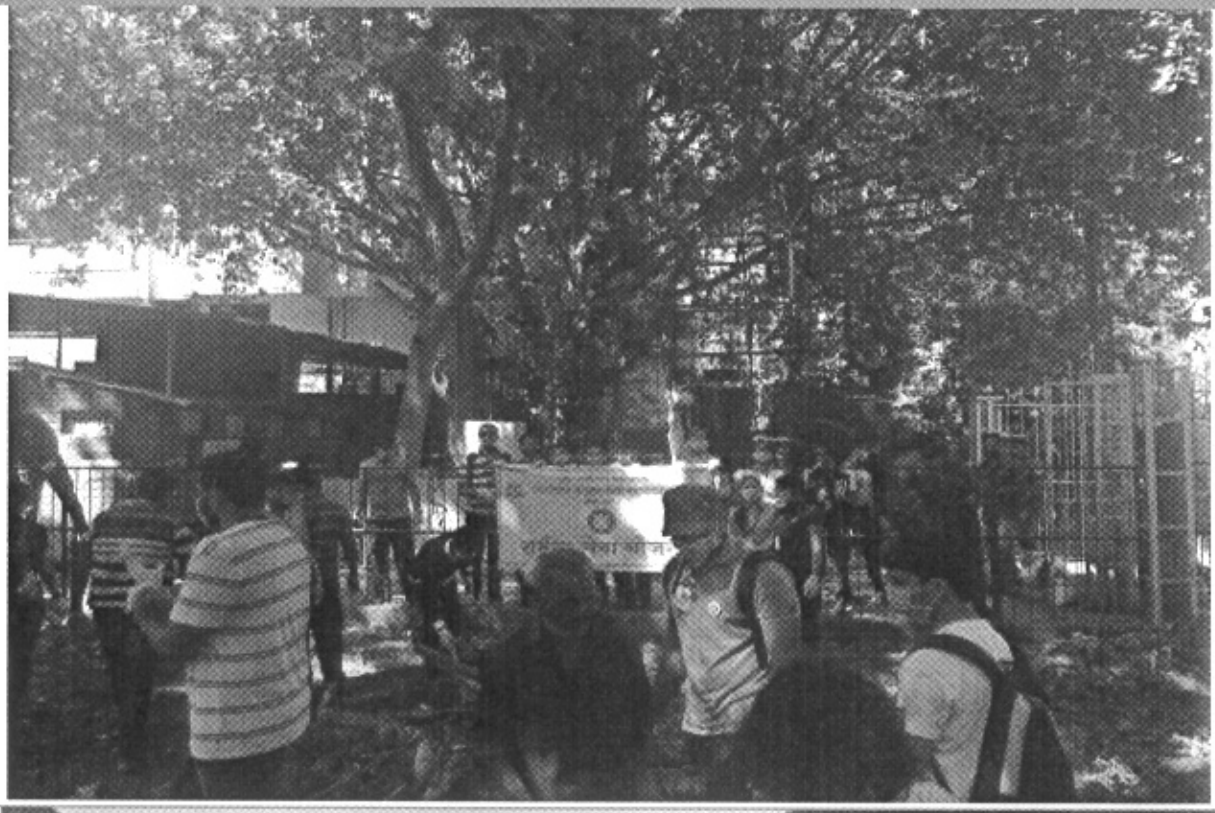
OSERVATION

1. In the college premises there are number of trees which are maintained by the college.
2. College also took initiative of tree plantation with the help of students in the city area.

Tree plantation activities/ Cleanliness drive etc

Tree plantation activities/ Cleanliness drive etc

Tree plantation activities/ Cleanliness drive etc



3. ENERGY EFFICIENT EQUIPMENTS

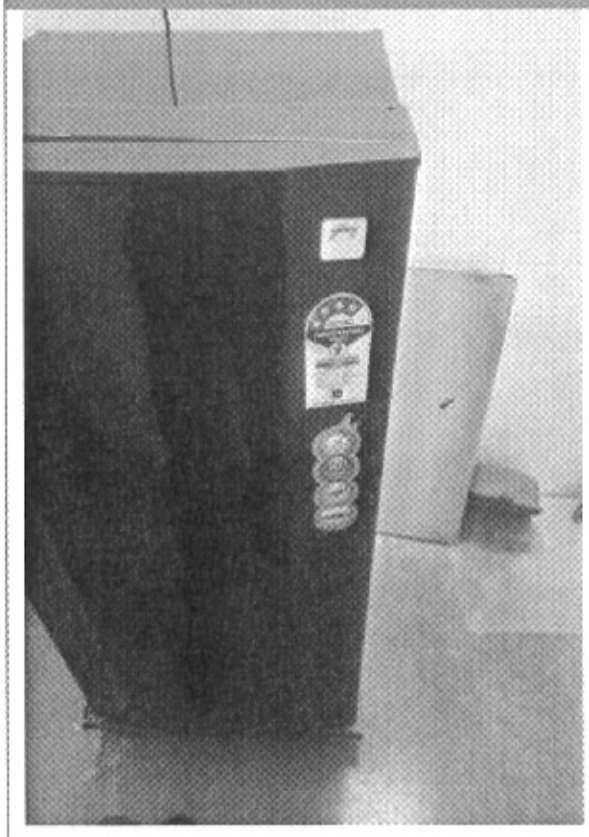
INTRODUCTION

Due to climate change and CO2 emission it is necessary to use energy efficient technologies. It helps to reduce the energy consumption without affecting the output. It also helps the reduced the CO2 emission reductions.

OSERVATION

1. College has taken step by step intuitive to implement various energy efficient equipment/technologies the the college.
2. College has implemented various energy efficient equipment like lighting, Air conditioners, Fridge etc

Energy efficient equipment



REFERENCES AND STANDARDS

1. Bureau of Energy Efficiency (BEE), Ministry of Power, Government of India
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4. National Ambient Air Quality Standards,2009, Central Pollution Control Board (CPCB), Government of India
5. The Noise (Pollution and Control) Rules, 2000 Government of India
6. Municipal Solid Wastes (Management and Handling) Rules, 2000, Government of India
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8. E-waste (Management) Rules, 2015, Government of Indi
9. Plastic Waste (Management and Handling) Rules, 2016, Government of India
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13. Indian Society of Heating, Refrigerating and Air Conditioning Engineers (ISHRAE)

ENERFUTURE

CERTIFICATE

ENERFUTURE TECHNOLOGY PRIVATE LIMITED

Verified and Certified that

ज्ञानं परमं बलम्

A.B.M.S PARISHAD'S

YASHWANTRAO CHAVAN LAW COLLEGE

LAXMI NAGAR, PARVATI RAMANA,
PUNE, MAHARASHTRA 411009
PHONE NO: 020 2422 1002
E-mail Id: yclawcollege@gmail.com

Website: www.yclawcolegepune.org

HAS CARRIED OUT

GREEN (ENVIRONMENT) AUDIT

AS PER GUIDANCE LAID DOWN IN THE
INDIAN STANDARDS AND CODES
IN 2021-22

This certificate is valid for 3 years from 2021-22 to 2023-24

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Yashwantrao Chavan Law College
Pune-411 009

ENVIRONMENT AUDIT REPORT

(ENERGY AUDIT AND GREEN AUDIT)

A.B.M.S PARISHAD'S

YASHWANTRAO CHAVAN LAW COLLEGE

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ACKNOWLEDGEMENT

Enerfuture thanks the management of Yashwantrao Chavan Law College, Pune for assigning this important work of Environment Audit of Yashwantrao Chavan Law College, Pune

Environment Audit study is a joint venture exercise of consultant and college/industry/residential society to account and contain energy usage without sacrificing the purpose of energy use.

Contribution of society's team is equally important in this venture. Team of technical experts from Enrfuture Pvt Ltd is grateful to all the following personnel of Yashwantrao Chavan Law College, Pune for their kind cooperation, furnishing required data, analysis report and hospitality offered during our visit.

Name	Designation
Ms Dr Subhada Gholap	Principal
Mr. Pramod Phadtare	Office Superintendent
Mr Ravindra Patil	Assistant professor

We are also thankful to the other staff members who were actively involved while taking measurements and conducting field study.

STUDY TEAM

Sr No	Name
1	Mr. Chetan Nemade
2	Mr Swapnil Gaikwad
3	Mr Ganesh Nikam

LIST OF INSTRUMENTS USED

1. Single Phase Power Analyzer (Germany)
2. Water Flowmeter (Fuji Electric , Japan))
3. Distance Meter (Bosch)
4. Lux meter (Meco)

EXCECUTIVE SUMMARY

ENERGY AUDIT

Sr no	Location	Area	Proposed Action	Expected Result	Saving Potential	Monetary Saving	Investment	Payback Period
				monthly	kWh	Rs	Rs	months
1	**Main college building**	Lightning recommendations	Replace existing old conventional 1x36W and 2x36W FTL with new energy efficient 1x18W LED tube light battens	Existing lighting consumption= 216.89kWh Expected energy consumption= 96.48kWh Total energy saved per month=216.89-96.48=120.41kWh	120.41	1204.1	12,000	9.97
	Boy's hostel	Lightning recommendations	Replace existing old conventional 1x36W with new energy efficient 1x18W LED tube light battens	Existing lighting consumption= 405.90kWh Expected energy consumption= 203.10kWh Total energy saved per month=405.90-203.10=202.80kWh	202.8	2133.46	22,500	10.55
	Girl's hostel	Lightning recommendations	Replace existing old conventional fans which consumes 65W with new energy efficient fans which	Existing lighting consumption= 301.55kWh Expected energy consumption= 149.53kWh	152.02	2298.54	18,600	8.09

			consumes 28W at places where is maximum usage	Total energy saved per month=301.55-149.53=152.02kWh				
2	**Main college building**	Fan recommendations	Replace existing old conventional fans which consumes 65W with new energy efficient fans which consumes 28W at places where maximum usage	Existing fan consumption= 387.01kWh Expected energy consumption= 166.71kWh Total energy saved per month=387.01-166.71=220.3kWh	220.3	2203	1,27,200	57.74
	Boy's hostel	Fan recommendations	Replace existing old conventional fans which consumes 65W with new energy efficient fans which consumes 28W at places where is maximum usage	Existing fan consumption= 590.10kWh Expected energy consumption= 289.8kWh Total energy saved per month=590.10-289.8=300.3kWh	300.3	3159.16	1,65,600	52.42
	Girl's hostel	Fan recommendations	Replace existing old conventional fans which consumes 65W with new energy efficient fans which consumes 28W at places where is maximum usage	Existing fan consumption= 341.25kWh Expected energy consumption= 147.0kWh Total energy saved per month=341.25-147.0=194.25kWh	194.25	2937.06	84,000	28.6
3	**Main college building**	Electricity duty recommendations	As per Maharashtra electricity duty act-1948 and revised-2016 electricity duty is exempted for colleges, its hostels etc	Average monthly electricity duty of main college =1000 Rs	-	12993.38	10,000	0.77
	Boy's hostel			Average monthly electricity duty of boy's hostel=5912 Rs				
	Girl's hostel			Average monthly electricity duty of girl's hostel=6081.38 Rs				

4	**Girl's hostel**	Tariff change	Existing tariff of girl's college is LT-3 phase residential. But applicable tariff to girl's hostel is LT-X-B-I (0-20kW) as per MSEDCL tariff order	Average monthly saving=13395.2 Rs	-	13395.2	50,000	3.73
Total					**931.95**	**40323.9**	**489900**	**21.48**

CONTENTS

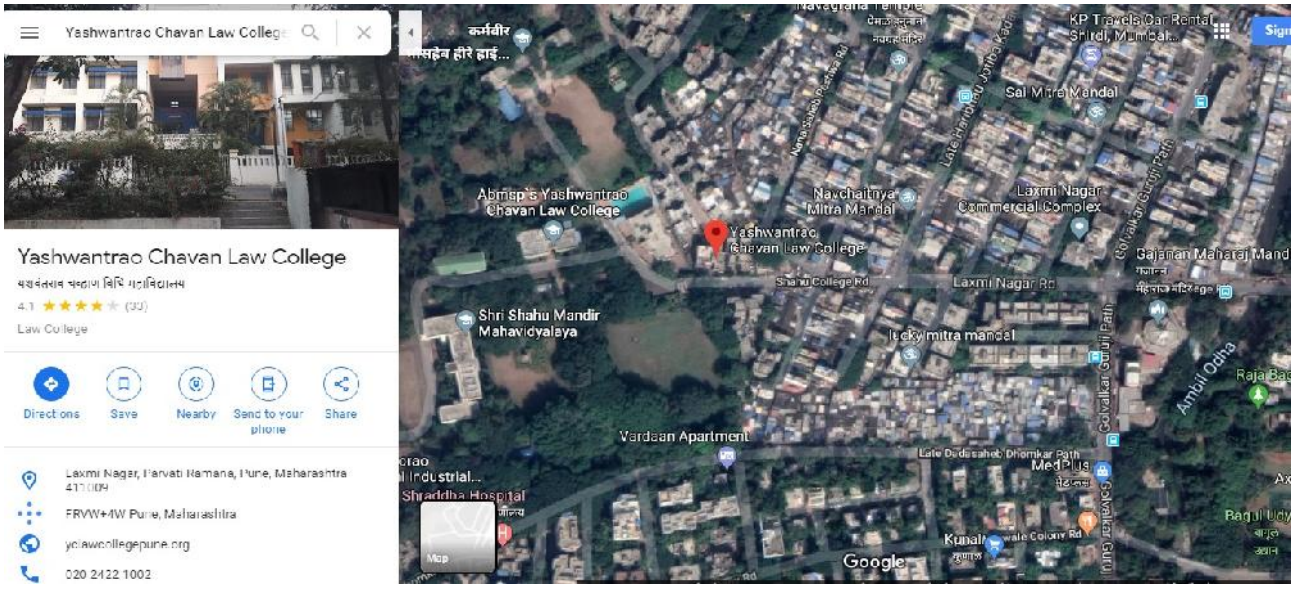
COLLEGE INTRODUCTION

INTRODUCTION

Yashwantrao Chavan Law College was established in June 1978. In the beginning, the college was known as A. B. M. S. Parishad's Law College. However, in the year 1987, in the memory of our country's great visionary leader, Late Shri Yashwantrao Chavan, who rose to the height of Deputy of Prime Minister, the college was named after him, as a mark of respect and honour towards him.

The College has its own spacious building which is located in the same campus of A B M S Parishad and which is constructed as per norms laid down UGC. The building was inaugurated on 20th February, 2005 at the auspicious hands of Honourable Shri Sharadrao Pawar (Then Agriculture Minister, Government of India and the President of A B M S Parishad) in presence of Mr. Ajit Pawar (Ex-Deputy Chief Minister, Govt. of Maharashtra)

LOCATION



ENERGY AUDIT

ELECTRICITY BILL SUMMARY

Yashwantrao Chavan Law College has one MSEDCL three phase LT electricity connection in the main college building and other two have in boy's hostel and girl's hostel.

The major electricity consumption in main college building is lighting and fans during college hours. In boy's and girl's hostel lighting, fans and water pump are main electricity consuming utilities.

ELECTRICITY BILL SUMMARY

1. MAIN COLLEGE BUILDING ELECTRICITY BILL SUMMARY

Meter No	160240191081				
BU	4605				
Connected load	15				kW
Meter	LT-X-B-I, 0-20kW Pub Sector others 3-phase				
	Total units	Adjusted units	Electricity duty	Total Bill	Average Unit Rate
	kWh	kWh	Rs	Rs/month	Rs/kWh
Aug-18	847	0	1365.35	7943.57	9.38
Sep-18	1044	0	1724.89	10033.01	9.61
Oct-18	1289	0	2258	13126.92	10.18
Nov-18	1223	0	2243.46	13037.18	10.66
Dec-18	0	0	0	350	0.00
Jan-19	0	0	0	350	0.00
Feb-19	3785	1957	3446.36	20230.19	5.34
Mar-19	668	291	478.45	2812.23	4.21
Apr-19	640	1	74.96	432.12	0.68
May-19	541	0	0	350	0.65
Jun-19	770	257	429.13		0.00
Jul-19	493	197	312	1835.23	3.72
Aug-19	836	207	1028.44	6045.52	7.23
Average	934		13361	6379	

2. BOY'S HOSTEL ELECTRICITY BILL SUMMARY

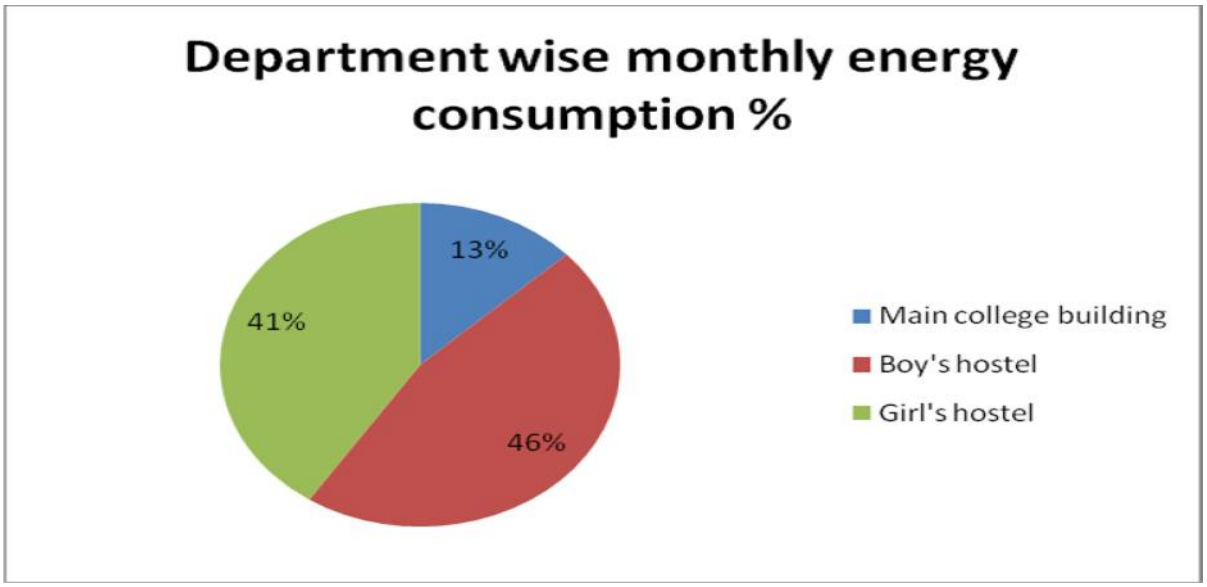
Meter No	170012480744			
BU	4605			
Connected load	1			kW
Meter	LT-X-B-I, 0-20kW Pub Sector others 3-phase			
	Total units	Electricity duty	Total Bill	Average Unit Rate
	kWh	Rs	Rs/month	Rs/kWh
Sep-18	3066	5172.8	30082.35	9.81
Oct-18	3748	6662.81	38729.29	10.33
Nov-18	1983	3667.1	21308.72	10.75
Dec-18	2150	3741.33	21751.57	10.12
Jan-19	2627	4700.26	27319.94	10.40
Feb-19	2627	4775.82	28017.98	10.67
Mar-19	2627	4625.13	27149.73	10.33
Apr-19	100	197.76	1158.5	11.59
May-19	10485	18728.87	109910.31	10.48
Jun-19	2097	3838.91	22518.72	10.74
Jul-19	5070	9184.9	53887.83	10.63
Aug-19	3192	5648.29	33152.69	10.39
Average	**3314**	**70944**	**34582**	**10.52**

3. GIRL'S HOSTEL ELECTRICITY BILL SUMMARY

Meter No	160240583884			
BU	4605			
Connected load	25			kW
Meter	LT-I, Residential 3-phase			
	Total units	Electricity duty	Total Bill	Average Unit Rate
	kWh	Rs	Rs/month	Rs/kWh
Sep-18	3948	8350.96	60544.48	15.34
Oct-18	4424	9138.9	66261.45	14.98
Nov-18	2500	5290.51	38356.18	15.34
Dec-18	2868	5736.95	41593.12	14.50
Jan-19	3173	6486.48	47032.43	14.82
Feb-19	3429	7169.6	51979.75	15.16
Mar-19	3269	6630.62	48072.2	14.71
Apr-19	2780	5968.69	43280.19	15.57
May-19	2568	5622.14	40769.21	15.88
Jun-19	1114	2192.08	15893.77	14.27
Jul-19	2111	4516.97	32748.21	15.51
Aug-19	2763	5872.61	42576.88	15.41
Average	**2912**	**72977**	**44092**	**15.12**

TOTAL DEPARTMENT WISE % ENERGY CONSUMPTION

Facility	Total units	Solar units generation	Amount	Average unit rate	% of energy consumption
	kWh/month	kWh/month	Rs/month	Rs/kWh	%
Main college building	934	416	6379	6.83	13.04
Boy's hostel	3314	0	34582	10.44	46.28
Girl's hostel	2912	0	44092	15.14	40.67
Total	**7160**	**416**	**85053**	**32.40637**	**100**



OBSERVATION

1. Total monthly energy consumption of the college is 7160 units.
2. Total monthly billing is Rs 85,053/-
3. Girl's hostel energy consumption is more and it's approximately 46% of total energy use.
4. Boy's hostel energy consumption is second after girl's hostel and it's 41% of total energy use.
5. College's energy consumption is less due to implementation of solar photovoltaic system and its 13% of total energy use.
6. 10kWp Solar PV system is installed in main college building as a renewable energy source.

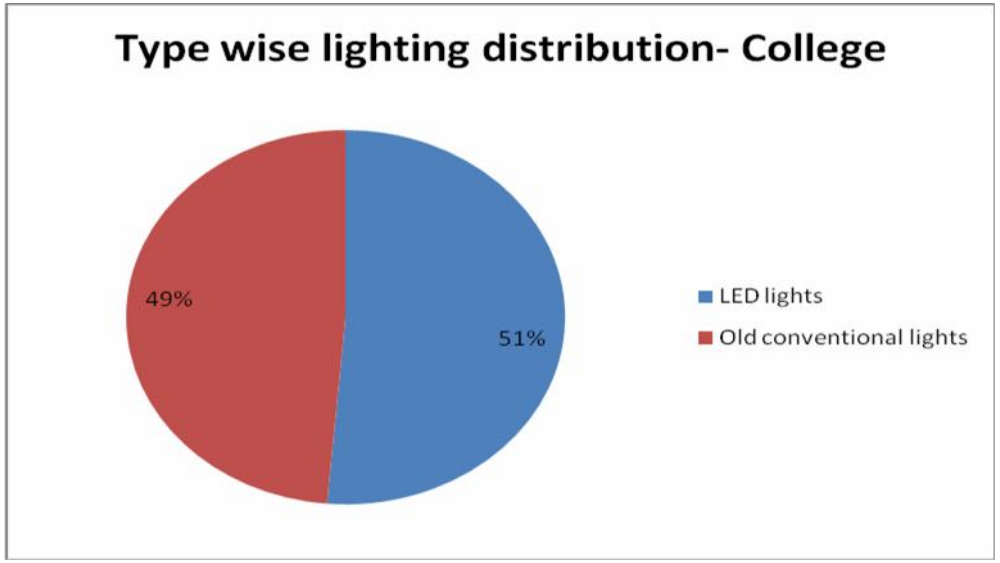
ENERGY PERFORMANCE ASSESSMENT OF LIGHTING

1. MAIN COLLEGE BUILDING

OBSERVATION

College has installed new energy efficient LED lighting in the main college building. There are old conventional lightings are also in the college in use.

Type	Quantity	kW load	% load
LED lights	38	0.73	51.35
Old conventional lights	36	1.37	48.65
Total	**74**	**2.10**	**100**



PERFORMANCE ASSESSMENT OF LIGHTING SYSTEM

Floor	Room	Name	Light Type	Type	Ballast	Qty	Wattage	Hours of usage	No of Days in a month	Monthly consumption
						No	watt	hrs	days	kWh/day
Ground floor		Staircase	LED	1x20W	EC	1	20	1	25	0.50
		Parking	LED	1x12W	EC	11	12	5	25	16.50
		Street light	LED	1x30W	EC	4	40	11	25	44.00
	1	Counselling cell	LED	1x20W	EC	2	20	0.25	25	0.25
	2	Room 1	LED	1x20W	EC	2	25	0.25	25	0.31
	3	Ladies staff room	LED	1x20W	EC	1	20	0.25	25	0.13
	4	Gymkhana	LED	1x20W	EC	4	20	0.25	25	0.50
Ground floor			FTL	1x36W	MC	1	40	0.25	25	0.25
	5	Store room	LED	1x20W	EC	1	20	0.1	25	0.05
1st Floor	109	College office	LED	2x20W	EC	2	20	8	25	8.00
			LED	1x20W	EC	1	20	8	25	4.00
			FTL	2x36W	EC	2	36	8	25	14.40
		Cash room	FTL	2x36W	EC	2	36	8	25	14.40
1st Floor	108	Faculty room	FTL	1x36W	EC	1	36	7	25	6.30
			FTL	1x40W	EC	1	40	7	25	7.00
	107	Examination office	LED	2*20W	EC	2	20	7	25	7.00
		Principal office	FTL	2x36W	EC	2	36	5	25	9.00
			FTL	1x36W	EC	1	36	0.25	25	0.23
			LED	1x12W	EC	2	12	0.25	25	0.15
		1st floor passage	FTL	1x36W	EC	4	36	8	25	28.80

	101	BA LLB-I-A	FTL	1x36W	EC	2	36	5	25	9.00
			LED	1x20W	EC	1	20	5	25	2.50
	102	BA LLB-I-B	FTL	1x36W	MC	1	40	5	25	5.00
			LED	1x20W	EC	3	20	5	25	7.50
	103	BA LLB-II	FTL	1x36W	MC	1	40	5	25	5.00
			LED	1x20W	EC	3	20	5	25	7.50
	104	Women cell	FTL	1x36W	EC	1	36	0.1	25	0.09
	105	Ladies common cell	FTL	1x36W	EC	1	36	0.1	25	0.09
		Gent's toilet	LED	1x20W	EC	2	20	7	25	7.00
		Ladies’ toilet	LED	1x20W	EC	2	20	7	25	7.00
2nd Floor		Library	FTL	1x36W	EC	4	36	8	25	28.80
			LED	1x20W	EC	4	20	8	25	16.00
			LED	1x12W	EC	2	12	5	25	3.00
		Reference library	FTL	1x36W	EC	2	36	1	25	1.80
			FTL	1x40W	EC	1	40	1	25	1.00
			LED	1*20W	EC	3	20	1	25	1.50
		Computer room	LED	1x12W	EC	2	12	1	25	0.60
		2nd floor passage	LED	1x12W	EC	3	12	8	25	7.20
	201	LLB-1-A	FTL	1x36W	EC	2	36	5	25	9.00
			LED	1x20W	EC	3	20	5	25	7.50
	202	LLB-1-B	FTL	1x36W	EC	1	36	5	25	4.50
			FTL	1x40W	EC	1	40	5	25	5.00
			LED	1*20W	EC	3	20	5	25	7.50
	203	LLB-1-C	FTL	1x36W	EC	1	36	5	25	4.50
			FTL	1x40W	EC	2	40	5	25	10.00
			LED	1*20W	EC	2	20	5	25	5.00

	206	Research cell	LED	1x12W	EC	2	12	5	25	3.00
		Gent's toilet	FTL	1x36W	EC	1	36	7	25	6.30
			LED	1x20W	EC	1	20	7	25	3.50
		Ladies' toilet	LED	1x20W	EC	2	20	7	25	7.00
3rd Floor	301	Moot court hall	FTL	1x40W	MC	1	45	0.25	25	0.28
			FTL	1x40W	EC	1	40	0.25	25	0.25
			LED	1x20W	EC	1	20	0.25	25	0.13
	302	BA LLB-III	FTL	1x40W	EC	2	40	5	25	10.00
			LED	1x20W	EC	3	20	5	25	7.50
	303	BA LLB-IV	FTL	1x36W	EC	2	36	5	25	9.00
			LED	1x20W	EC	3	20	5	25	7.50
	304	Record room II	FTL	1x36W	EC	1	36	5	25	4.50
	305	Seminar hall	LED	1x20W	EC	12	20	0.5	25	3.00
			Halogen	250W	MC	2	250	0.05	25	0.63
	306	LLB I-D	LED	1x20W	EC	4	20	5	25	10.00
		LLM staff room	LED	1x20W	EC	1	20	5	25	2.50
		LLM staff toilet	FTL	1x36W	EC	1	36	0.25	25	0.23
		Gent's toilet	FTL	1x36W	MC	1	40	0.25	25	0.25
			FTL	1x40W	MC	1	45	0.25	25	0.28
		Ladies' toilet	FTL	1x36W	MC	1	40	0.25	25	0.25
			FTL	1x40W	MC	1	45	0.25	25	0.28
4th Floor	401	LLB II-A	FTL	1x36W	EC	1	36	2	25	1.80
	402	LLB II-B	FTL	1x36W	EC	1	36	2	25	1.80
	403	LLB II-C	FTL	1x36W	EC	1	36	2	25	1.80
	404	Record room III	FTL	1x36W	EC	1	36	0.1	25	0.09
		Gent's toilet	LED	1x20W	EC	2	20	0.1	25	0.10

	Ladies' toilet	LED	1x20W	EC	2	20	0.1	25	0.10
	4th floor passage	LED	1x12W	EC	2	12	0.1	25	0.06
	Staircase	LED	1x20W	EC	3	20	0.1	25	0.15
						2346.00			**407.61**

ENERGY SAVING MEASURES

Floor	Room	Name	Light Type		Qty	Watt	Mthly kWh	Change	New Qty	New mthly kWh	Mthly saving kWh	Mthly saving	Total inv	Payback period
					no	W	kWh		No	kWh	kWh	Rs	Rs	months
Ground floor			FTL	1x36W	1	40	0.25	LED-1x18W	1	0.11	0.14	1.38	250	181.82
			FTL	2x36W	2	36	14.4	LED-1x18W	1	3.60	10.80	108.00	250	2.31
		Cash room	FTL	2x36W	2	36	14.4	LED-1x18W	1	3.60	10.80	108.00	250	2.31
1st Floor	108	Faculty room	FTL	1x36W	1	36	6.3	LED-1x18W	1	3.15	3.15	31.50	250	7.94
			FTL	1x40W	1	40	7	LED-1x18W	1	3.15	3.85	38.50	250	6.49
		Principal office	FTL	2x36W	2	36	9	LED-1x18W	1	2.25	6.75	67.50	250	3.70
			FTL	1x36W	1	36	0.225	LED-1x18W	1	0.11	0.11	1.13	250	222.22
		1st floor passage	FTL	1x36W	4	36	28.8	LED-1x18W	4	14.40	14.40	144.00	1000	6.94
	101	BA LLB-I-A	FTL	1x36W	2	36	9	LED-1x18W	2	4.50	4.50	45.00	500	11.11
	102	BA LLB-I-	FTL	1x36W	1	40	5	LED-1x18W	1	2.25	2.75	27.50	250	9.09

		B											
	103	BA LLB-II	FTL	1x36W	1	40	5	LED-1x18W	1	2.25	2.75	27.50	250	9.09
	104	Women cell	FTL	1x36W	1	36	0.09	LED-1x18W	1	0.05	0.05	0.45	250	555.56
	105	Ladies common cell	FTL	1x36W	1	36	0.09	LED-1x18W	1	0.05	0.05	0.45	250	555.56
2nd Floor		Library	FTL	1x36W	4	36	28.8	LED-1x18W	4	14.40	14.40	144.00	1000	6.94
		Reference library	FTL	1x36W	2	36	1.8	LED-1x18W	2	0.90	0.90	9.00	500	55.56
			FTL	1x40W	1	40	1	LED-1x18W	1	0.45	0.55	5.50	250	45.45
	201	LLB-1-A	FTL	1x36W	2	36	9	LED-1x18W	2	4.50	4.50	45.00	500	11.11
	202	LLB-1-B	FTL	1x36W	1	36	4.5	LED-1x18W	1	2.25	2.25	22.50	250	11.11
			FTL	1x40W	1	40	5	LED-1x18W	1	2.25	2.75	27.50	250	9.09
	203	LLB-1-C	FTL	1x36W	1	36	4.5	LED-1x18W	1	2.25	2.25	22.50	250	11.11
			FTL	1x40W	2	40	10	LED-1x18W	2	4.50	5.50	55.00	500	9.09
		Gent's toilet	FTL	1x36W	1	36	6.3	LED-1x18W	1	3.15	3.15	31.50	250	7.94
3rd Floor	301	Moot court hall	FTL	1x40W	1	45	0.28125	LED-1x18W	1	0.11	0.17	1.69	250	148.15
			FTL	1x40W	1	40	0.25	LED-1x18W	1	0.11	0.14	1.38	250	181.82
	302	BA LLB-III	FTL	1x40W	2	40	10	LED-1x18W	2	4.50	5.50	55.00	500	9.09
	303	BA LLB-IV	FTL	1x36W	2	36	9	LED-1x18W	2	4.50	4.50	45.00	500	11.11
	304	Record room II	FTL	1x36W	1	36	4.5	LED-1x18W	1	2.25	2.25	22.50	250	11.11
		LLM staff toilet	FTL	1x36W	1	36	0.225	LED-1x18W	1	0.11	0.11	1.13	250	222.22

		Gent's toilet	FTL	1x36W	1	40	0.25	LED-1x18W	1	0.11	0.14	1.38	250	181.82
			FTL	1x40W	1	45	0.28125	LED-1x18W	1	0.11	0.17	1.69	250	148.15
		Ladies' toilet	FTL	1x36W	1	40	0.25	LED-1x18W	1	0.11	0.14	1.38	250	181.82
			FTL	1x40W	1	45	0.28125	LED-1x18W	1	0.11	0.17	1.69	250	148.15
4th Floor	401	LLB II-A	FTL	1x36W	1	36	1.8	LED-1x18W	1	0.90	0.90	9.00	250	27.78
	402	LLB II-B	FTL	1x36W	1	36	1.8	LED-1x18W	1	0.90	0.90	9.00	250	27.78
	403	LLB II-C	FTL	1x36W	1	36	1.8	LED-1x18W	1	0.90	0.90	9.00	250	27.78
	404	Record room III	FTL	1x36W	1	36	0.09	LED-1x18W	1	0.05	0.05	0.45	250	555.56
							216.89			**96.48**	**120.41**	**1204.10**	**12000**	**9.97**

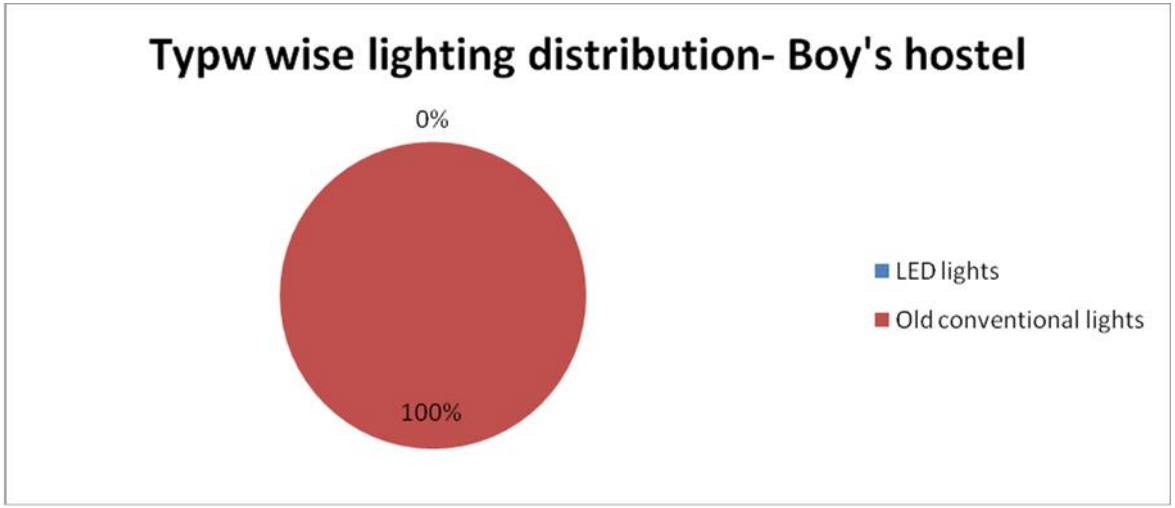
Particulars		
Monthly consumption	216.89	kWh/month
New monthly consumption	96.48	kWh/month
New monthly saving	120.41	kWh/month
New monthly saving	1204.1	Rs/month
Total Investment	12000	Rs
Payback period	9.97	months

2. BOY'S HOSTEL

OBSERVATION

Boy's hostel has installed almost all old conventional lightings. Most of the lightings are FTL 1x36W

Type	Quantity	kW load
LED lights	0	0.00
Old conventional lights	76	2.02
Total	76	2.02



PERFORMANCE ASSESSMENT OF LIGHTING SYSTEM

Floor	Room	Name	Light Type	Type	Ballast	Qty	Wattage	Hours of usage	No of Days in a month	Monthly consumption
						No	watt	hrs	days	kWh/day
Ground floor	1	Room 1	FTL	1x36W	EC	1	36	6	25	5.40
	2	Room 2	FTL	1x36W	EC	1	36	6	25	5.40
	3	Room 3	FTL	1x36W	EC	1	36	6	25	5.40
	4	Room 4	FTL	1x36W	EC	1	36	6	25	5.40
	5	Room 5	FTL	1x36W	EC	1	36	6	25	5.40
	6	Room 6	FTL	1x36W	EC	1	36	6	25	5.40
	7	Room 7	FTL	1x36W	EC	1	36	6	25	5.40
	8	Room 8	FTL	1x36W	EC	1	36	6	25	5.40
	9	Room 9	FTL	1x36W	EC	1	36	6	25	5.40
	10	Room 10	FTL	1x36W	EC	1	36	6	25	5.40
	11	Room 11	FTL	1x36W	EC	1	36	6	25	5.40
	12	Room 12	FTL	1x36W	EC	1	36	6	25	5.40
	13	Room 13	FTL	1x36W	EC	1	36	6	25	5.40
	14	Room 14	FTL	1x36W	EC	1	36	6	25	5.40
	15	Room 15	FTL	1x36W	EC	1	36	6	25	5.40
	16	Room 16	FTL	1x36W	EC	1	36	6	25	5.40
	17	Room 17	FTL	1x36W	EC	1	36	6	25	5.40
	18	Room 18	FTL	1x36W	EC	1	36	6	25	5.40
	19	Room 19	FTL	1x36W	EC	1	36	6	25	5.40
	20	Room 20	FTL	1x36W	EC	1	36	6	25	5.40
	21	Room 21	FTL	1x36W	EC	1	36	6	25	5.40

	22	Room 22	FTL	1x36W	EC	1	36	6	25	5.40
	23	Room 23	FTL	1x36W	EC	1	36	6	25	5.40
		Bathroom 1	FTL	1x36W	EC	1	36	6	25	5.40
1st Floor	24	Room 24	FTL	1x36W	EC	2	36	11	25	19.80
	25	Room 25	FTL	1x36W	EC	1	36	6	25	5.40
	26	Room 26	FTL	1x36W	EC	1	36	6	25	5.40
	27	Room 27	FTL	1x36W	EC	1	36	6	25	5.40
	28	Room 28	FTL	1x36W	EC	1	36	6	25	5.40
	29	Room 29	FTL	1x36W	EC	1	36	6	25	5.40
	30	Room 30	FTL	1x36W	EC	1	36	6	25	5.40
	31	Room 31	FTL	1x36W	EC	1	36	6	25	5.40
	32	Room 32	FTL	1x36W	EC	1	36	6	25	5.40
	33	Room 33	FTL	1x36W	EC	1	36	6	25	5.40
	34	Room 34	FTL	1x36W	EC	1	36	6	25	5.40
	35	Room 35	FTL	1x36W	EC	1	36	6	25	5.40
	36	Room 36	FTL	1x36W	EC	1	36	6	25	5.40
	37	Room 37	FTL	1x36W	EC	1	36	6	25	5.40
	38	Room 38	FTL	1x36W	EC	1	36	6	25	5.40
	39	Room 39	FTL	1x36W	EC	1	36	6	25	5.40
	40	Room 40	FTL	1x36W	EC	1	36	6	25	5.40
	41	Room 41	FTL	1x36W	EC	1	36	6	25	5.40
	42	Room 42	FTL	1x36W	EC	1	36	6	25	5.40
	43	Room 43	FTL	1x36W	EC	1	36	6	25	5.40
	44	Room 44	FTL	1x36W	EC	1	36	6	25	5.40
	45	Room 45	FTL	1x36W	EC	1	36	6	25	5.40
	46/47	ITI class room 1	FTL	1x36W	EC	2	36	4	25	7.20

	48/49	ITI class room 2	FTL	1x36W	EC	2	36	4	25	7.20
	50/51	ITI class room 3	FTL	1x36W	EC	3	36	4	25	10.80
	52	Room 46	FTL	1x36W	EC	1	36	6	25	5.40
	53	Room 47	FTL	1x36W	EC	1	36	6	25	5.40
	54	Room 48	FTL	1x36W	EC	1	36	6	25	5.40
		Hall	FTL	1x36W	EC	14	36	6	25	75.60
		Bathroom 1	FTL	1x36W	EC	1	36	11	25	9.90
1st Floor		ITI office	FTL	1x36W	EC	3	36	6	25	16.20
						75	**1980**			**405.90**

ENERGY SAVING MEASURES

Room	Name	Light Type		Qty	Watt	Mthly kWh	Change	New watt	New Qty	New mthly kWh	Mthly saving	Mthly saving	Total inv	Payback period
				No	W	kWh		W	No	kWh	kWh	Rs	Rs	months
1	Room 1	FTL	1x36W	1	36	5.4	LED-1x18W	18	1	2.7	2.7	28.40	300	10.56
2	Room 2	FTL	1x36W	1	36	5.4	LED-1x18W	18	1	2.7	2.7	28.40	300	10.56
3	Room 3	FTL	1x36W	1	36	5.4	LED-1x18W	18	1	2.7	2.7	28.40	300	10.56
4	Room 4	FTL	1x36W	1	36	5.4	LED-1x18W	18	1	2.7	2.7	28.40	300	10.56
5	Room 5	FTL	1x36W	1	36	5.4	LED-1x18W	18	1	2.7	2.7	28.40	300	10.56
6	Room 6	FTL	1x36W	1	36	5.4	LED-1x18W	18	1	2.7	2.7	28.40	300	10.56
7	Room 7	FTL	1x36W	1	36	5.4	LED-1x18W	18	1	2.7	2.7	28.40	300	10.56
8	Room 8	FTL	1x36W	1	36	5.4	LED-1x18W	18	1	2.7	2.7	28.40	300	10.56
9	Room 9	FTL	1x36W	1	36	5.4	LED-1x18W	18	1	2.7	2.7	28.40	300	10.56

10	Room 10	FTL	1x36W	1	36	5.4	LED-1x18W	18	1	2.7	2.7	28.40	300	10.56
11	Room 11	FTL	1x36W	1	36	5.4	LED-1x18W	18	1	2.7	2.7	28.40	300	10.56
12	Room 12	FTL	1x36W	1	36	5.4	LED-1x18W	18	1	2.7	2.7	28.40	300	10.56
13	Room 13	FTL	1x36W	1	36	5.4	LED-1x18W	18	1	2.7	2.7	28.40	300	10.56
14	Room 14	FTL	1x36W	1	36	5.4	LED-1x18W	18	1	2.7	2.7	28.40	300	10.56
15	Room 15	FTL	1x36W	1	36	5.4	LED-1x18W	18	1	2.7	2.7	28.40	300	10.56
16	Room 16	FTL	1x36W	1	36	5.4	LED-1x18W	18	1	2.7	2.7	28.40	300	10.56
17	Room 17	FTL	1x36W	1	36	5.4	LED-1x18W	18	1	2.7	2.7	28.40	300	10.56
18	Room 18	FTL	1x36W	1	36	5.4	LED-1x18W	18	1	2.7	2.7	28.40	300	10.56
19	Room 19	FTL	1x36W	1	36	5.4	LED-1x18W	18	1	2.7	2.7	28.40	300	10.56
20	Room 20	FTL	1x36W	1	36	5.4	LED-1x18W	18	1	2.7	2.7	28.40	300	10.56
21	Room 21	FTL	1x36W	1	36	5.4	LED-1x18W	18	1	2.7	2.7	28.40	300	10.56
22	Room 22	FTL	1x36W	1	36	5.4	LED-1x18W	18	1	2.7	2.7	28.40	300	10.56
23	Room 23	FTL	1x36W	1	36	5.4	LED-1x18W	18	1	2.7	2.7	28.40	300	10.56
	Bathroom 1	FTL	1x36W	1	36	5.4	LED-1x18W	19	1	2.85	2.55	26.83	300	11.18
24	Room 24	FTL	1x36W	2	36	19.8	LED-1x18W	18	2	9.9	9.9	104.15	600	5.76
25	Room 25	FTL	1x36W	1	36	5.4	LED-1x18W	18	1	2.7	2.7	28.40	300	10.56
26	Room 26	FTL	1x36W	1	36	5.4	LED-1x18W	18	1	2.7	2.7	28.40	300	10.56
27	Room 27	FTL	1x36W	1	36	5.4	LED-1x18W	18	1	2.7	2.7	28.40	300	10.56
28	Room 28	FTL	1x36W	1	36	5.4	LED-1x18W	18	1	2.7	2.7	28.40	300	10.56
29	Room 29	FTL	1x36W	1	36	5.4	LED-1x18W	18	1	2.7	2.7	28.40	300	10.56
30	Room 30	FTL	1x36W	1	36	5.4	LED-1x18W	18	1	2.7	2.7	28.40	300	10.56
31	Room 31	FTL	1x36W	1	36	5.4	LED-1x18W	18	1	2.7	2.7	28.40	300	10.56

32	Room 32	FTL	1x36W	1	36	5.4	LED-1x18W	18	1	2.7	2.7	28.40	300	10.56
33	Room 33	FTL	1x36W	1	36	5.4	LED-1x18W	18	1	2.7	2.7	28.40	300	10.56
34	Room 34	FTL	1x36W	1	36	5.4	LED-1x18W	18	1	2.7	2.7	28.40	300	10.56
35	Room 35	FTL	1x36W	1	36	5.4	LED-1x18W	18	1	2.7	2.7	28.40	300	10.56
36	Room 36	FTL	1x36W	1	36	5.4	LED-1x18W	18	1	2.7	2.7	28.40	300	10.56
37	Room 37	FTL	1x36W	1	36	5.4	LED-1x18W	18	1	2.7	2.7	28.40	300	10.56
38	Room 38	FTL	1x36W	1	36	5.4	LED-1x18W	18	1	2.7	2.7	28.40	300	10.56
39	Room 39	FTL	1x36W	1	36	5.4	LED-1x18W	18	1	2.7	2.7	28.40	300	10.56
40	Room 40	FTL	1x36W	1	36	5.4	LED-1x18W	18	1	2.7	2.7	28.40	300	10.56
41	Room 41	FTL	1x36W	1	36	5.4	LED-1x18W	18	1	2.7	2.7	28.40	300	10.56
42	Room 42	FTL	1x36W	1	36	5.4	LED-1x18W	18	1	2.7	2.7	28.40	300	10.56
43	Room 43	FTL	1x36W	1	36	5.4	LED-1x18W	18	1	2.7	2.7	28.40	300	10.56
44	Room 44	FTL	1x36W	1	36	5.4	LED-1x18W	18	1	2.7	2.7	28.40	300	10.56
45	Room 45	FTL	1x36W	1	36	5.4	LED-1x18W	18	1	2.7	2.7	28.40	300	10.56
46/47	ITI class room 1	FTL	1x36W	2	36	7.2	LED-1x18W	18	2	3.6	3.6	37.87	600	15.84
48/49	ITI class room 2	FTL	1x36W	2	36	7.2	LED-1x18W	18	2	3.6	3.6	37.87	600	15.84
50/51	ITI class room 3	FTL	1x36W	3	36	10.8	LED-1x18W	18	3	5.4	5.4	56.81	900	15.84
52	Room 46	FTL	1x36W	1	36	5.4	LED-1x18W	18	1	2.7	2.7	28.40	300	10.56
53	Room 47	FTL	1x36W	1	36	5.4	LED-1x18W	18	1	2.7	2.7	28.40	300	10.56
54	Room 48	FTL	1x36W	1	36	5.4	LED-1x18W	18	1	2.7	2.7	28.40	300	10.56
	Hall	FTL	1x36W	14	36	75.6	LED-1x18W	18	14	37.8	37.8	397.66	4200	10.56
	Bathroom 1	FTL	1x36W	1	36	9.9	LED-1x18W	18	1	4.95	4.95	52.07	300	5.76

	ITI office	FTL	1x36W	3	36	16.2	LED-1x18W	18	3	8.1	8.1	85.21	900	10.56
				75	**1980**	**405.9**			**75**	**203.1**	**202.8**	**2133.46**	**22500**	**10.69**

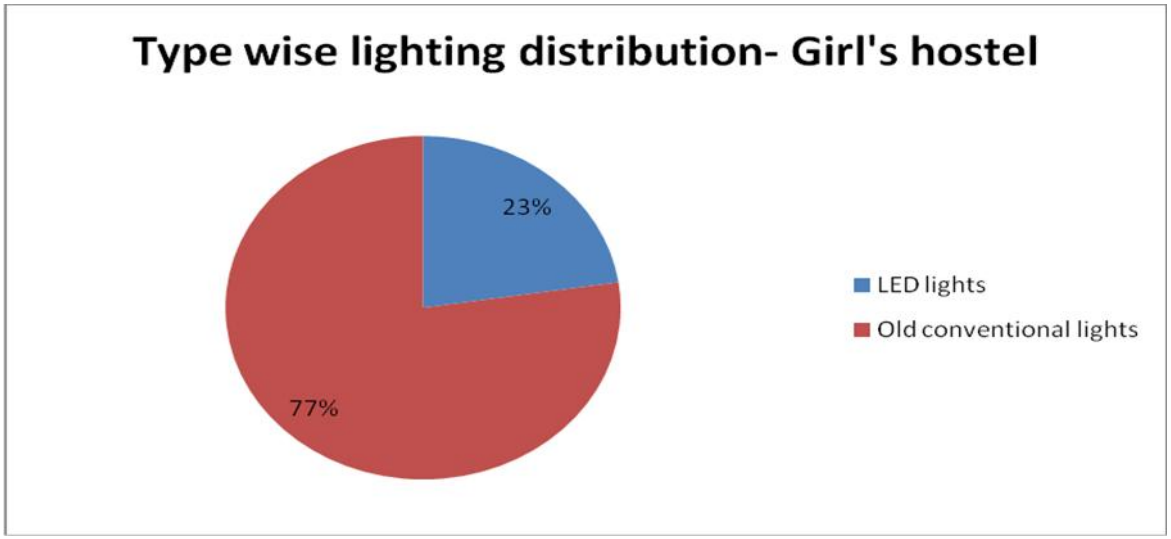
Particulars		
Monthly consumption	405.90	kWh/month
New monthly consumption	203.10	kWh/month
New monthly saving	202.80	kWh/month
New monthly saving	2133.46	Rs/month
Total Investment	22500	Rs
Payback period	**10.55**	**months**

3. GIRL'S HOSTEL

OBSERVATION

In girl's hostel still most of the room lightings are old conventional FTL 1x36W and CFL . At few places new energy efficient LED 1x20W lightings and street lights are used.

Type	Quantity	kW load	% load
LED lights	12	0.73	22.64
Old conventional lights	41	1.37	77.36
Total	**53**	**2.10**	**100**



PERFORMANCE ASSESSMENT OF LIGHTING SYSTEM

Room	Name	Light Type	Type	Ballast	Qty	Wattage	Hours of usage	No of Days in a month	Monthly consumption
					No	watt	hrs	days	kWh/day
1	Room 1	FTL	1x36W	EC	1	36	5	25	4.50
2	Room 2	FTL	1x36W	EC	1	36	5	25	4.50
3	Room 3	FTL	1x36W	EC	1	36	5	25	4.50
4	Room 4	FTL	1x36W	EC	1	36	5	25	4.50
5	Room 5	FTL	1x36W	EC	1	36	5	25	4.50
6	Room 6	FTL	1x36W	EC	1	36	5	25	4.50
7	Room 7	FTL	1x36W	EC	1	36	5	25	4.50
8	Room 8	FTL	1x36W	EC	1	36	5	25	4.50
9	Room 9	FTL	1x36W	EC	1	36	5	25	4.50
10	Room 10	FTL	1x36W	EC	1	36	5	25	4.50
11	Room 11	FTL	1x36W	EC	1	36	5	25	4.50
12	Room 12	FTL	1x36W	EC	1	36	5	25	4.50
13	Room 13	FTL	1x36W	EC	1	36	5	25	4.50
14	Room 14	FTL	1x36W	EC	1	36	5	25	4.50
15	Room 15	FTL	1x36W	EC	1	36	5	25	4.50
16	Room 16	FTL	1x36W	EC	1	36	5	25	4.50
17	Room 17	FTL	1x36W	EC	1	36	5	25	4.50
18	Room 18	FTL	1x36W	EC	1	36	5	25	4.50
19	Room 19	FTL	1x36W	EC	1	36	5	25	4.50
20	Room 20	FTL	1x36W	EC	1	36	5	25	4.50
21	Room 21	FTL	1x36W	EC	1	36	5	25	4.50

22	Room 22	FTL	1x36W	EC	1	36	5	25	4.50
23	Room 23	FTL	1x36W	EC	1	36	5	25	4.50
24	Room 24	FTL	1x36W	EC	1	36	5	25	4.50
25	Room 25	FTL	1x36W	EC	1	36	5	25	4.50
26	Room 26	FTL	1x36W	EC	1	36	5	25	4.50
27	Room 27	FTL	1x36W	EC	1	36	5	25	4.50
28	Room 28	FTL	1x36W	EC	1	36	5	25	4.50
29	Room 29	FTL	1x36W	EC	2	36	5	25	9.00
30	Room 30	FTL	1x36W	EC	2	36	5	25	9.00
31	Room 31	FTL	1x36W	EC	2	36	5	25	9.00
32	Room 32	FTL	1x36W	EC	2	36	5	25	9.00
	Passage ground	FTL	1x36W	EC	2	36	7	25	12.60
		LED	1x20W	EC	1	20	7	26	3.64
	Passage 1st floor	FTL	1x36W	EC	3	36	7	25	18.90
	Passage 2nd floor	FTL	1x36W	EC	3	36	7	25	18.90
	Passage 3rd floor	FTL	1x36W	EC	3	36	7	25	18.90
	Passage 4th floor	FTL	1x36W	EC	3	36	7	25	18.90
	Mess	FTL	1x36W	EC	2	36	5	25	9.00
		LED	1x20W	EC	5	20	5	25	12.50
		LED	1x12W	EC	3	12	5	25	4.50
		CFL	1x18W	EC	1	18	1	25	0.45
	Back outdoor room	FTL	1x36W	EC	2	36	3	25	5.40
		LED	1x20W	EC	1	20	7	25	3.50
		LED	1x50W	EC	2	50	2	25	5.00
	Street light	FTL	1x36W	EC	5	36	7	25	31.50
						1580			**325.69**

ENERGY SAVING MEASURES

Room	Name	Light Type		Qty	Watts	Monthly kWh	Change	New watts	New used Qty	New mthly kWh	Mthly saving	Mthly saving	Total inv	Payback period
				No	W	kWh		W	No	kWh	kWh	Rs	Rs	months
1	Room 1	FTL	1x36W	1	36	4.5	LED-1x18W	18	1	2.25	2.25	34.02	300	8.81
2	Room 2	FTL	1x36W	1	36	4.5	LED-1x18W	18	1	2.25	2.25	34.02	300	8.81
3	Room 3	FTL	1x36W	1	36	4.5	LED-1x18W	18	1	2.25	2.25	34.02	300	8.81
4	Room 4	FTL	1x36W	1	36	4.5	LED-1x18W	18	1	2.25	2.25	34.02	300	8.81
5	Room 5	FTL	1x36W	1	36	4.5	LED-1x18W	18	1	2.25	2.25	34.02	300	8.81
6	Room 6	FTL	1x36W	1	36	4.5	LED-1x18W	18	1	2.25	2.25	34.02	300	8.81
7	Room 7	FTL	1x36W	1	36	4.5	LED-1x18W	18	1	2.25	2.25	34.02	300	8.81
8	Room 8	FTL	1x36W	1	36	4.5	LED-1x18W	18	1	2.25	2.25	34.02	300	8.81
9	Room 9	FTL	1x36W	1	36	4.5	LED-1x18W	18	1	2.25	2.25	34.02	300	8.81
10	Room 10	FTL	1x36W	1	36	4.5	LED-1x18W	18	1	2.25	2.25	34.02	300	8.81
11	Room 11	FTL	1x36W	1	36	4.5	LED-1x18W	18	1	2.25	2.25	34.02	300	8.81
12	Room 12	FTL	1x36W	1	36	4.5	LED-1x18W	18	1	2.25	2.25	34.02	300	8.81
13	Room 13	FTL	1x36W	1	36	4.5	LED-1x18W	18	1	2.25	2.25	34.02	300	8.81
14	Room 14	FTL	1x36W	1	36	4.5	LED-1x18W	18	1	2.25	2.25	34.02	300	8.81
15	Room 15	FTL	1x36W	1	36	4.5	LED-1x18W	18	1	2.25	2.25	34.02	300	8.81
16	Room 16	FTL	1x36W	1	36	4.5	LED-1x18W	18	1	2.25	2.25	34.02	300	8.81
17	Room 17	FTL	1x36W	1	36	4.5	LED-1x18W	18	1	2.25	2.25	34.02	300	8.81
18	Room 18	FTL	1x36W	1	36	4.5	LED-1x18W	18	1	2.25	2.25	34.02	300	8.81
19	Room 19	FTL	1x36W	1	36	4.5	LED-1x18W	18	1	2.25	2.25	34.02	300	8.81
20	Room 20	FTL	1x36W	1	36	4.5	LED-1x18W	18	1	2.25	2.25	34.02	300	8.81
21	Room 21	FTL	1x36W	1	36	4.5	LED-1x18W	18	1	2.25	2.25	34.02	300	8.81

22	Room 22	FTL	1x36W	1	36	4.5	LED-1x18W	18	1	2.25	2.25	34.02	300	8.81
23	Room 23	FTL	1x36W	1	36	4.5	LED-1x18W	18	1	2.25	2.25	34.02	300	8.81
24	Room 24	FTL	1x36W	1	36	4.5	LED-1x18W	18	1	2.25	2.25	34.02	300	8.81
25	Room 25	FTL	1x36W	1	36	4.5	LED-1x18W	18	1	2.25	2.25	34.02	300	8.81
26	Room 26	FTL	1x36W	1	36	4.5	LED-1x18W	18	1	2.25	2.25	34.02	300	8.81
27	Room 27	FTL	1x36W	1	36	4.5	LED-1x18W	18	1	2.25	2.25	34.02	300	8.81
28	Room 28	FTL	1x36W	1	36	4.5	LED-1x18W	18	1	2.25	2.25	34.02	300	8.81
29	Room 29	FTL	1x36W	2	36	9	LED-1x18W	18	2	4.5	4.5	68.04	600	8.81
30	Room 30	FTL	1x36W	2	36	9	LED-1x18W	18	2	4.5	4.5	68.04	600	8.81
31	Room 31	FTL	1x36W	2	36	9	LED-1x18W	18	2	4.5	4.5	68.04	600	8.81
32	Room 32	FTL	1x36W	2	36	9	LED-1x18W	18	2	4.5	4.5	68.04	600	8.81
	Passage ground	FTL	1x36W	2	36	12.6	LED-1x18W	18	2	6.3	6.3	95.256	600	6.29
	Passage 1st floor	FTL	1x36W	3	36	18.9	LED-1x18W	18	3	9.45	9.45	142.884	900	6.29
	Passage 2nd floor	FTL	1x36W	3	36	18.9	LED-1x18W	18	3	9.45	9.45	142.884	900	6.29
	Passage 3rd floor	FTL	1x36W	3	36	18.9	LED-1x18W	18	3	9.45	9.45	142.884	900	6.29
	Passage 4th floor	FTL	1x36W	3	36	18.9	LED-1x18W	18	3	9.45	9.45	142.884	900	6.29
	Mess	FTL	1x36W	2	36	9	LED-1x18W	18	2	4.5	4.5	68.04	600	8.81
		CFL	1x18W	1	18	0.45	LED-1x5W	5	1	0.125	0.325	4.914	300	61.05
	Back outdoor room	FTL	1x36W	2	36	5.4	LED-1x18W	2	2	0.3	5.1	77.112	600	7.78
		LED	1x50W	2	50	5	LED-1x20W	20	2	2	3	45.36	600	13.22
	Street light	FTL	1x36W	5	36	31.5	LED-1x20W	20	5	17.5	14	211.68	1500	7.08
						301.55				**149.53**	**152.03**	**2298.62**	**18600**	**8.09**

Particulars		
Monthly consumption	301.55	kWh/month
New monthly consumption	149.53	kWh/month
New monthly saving	152.02	kWh/month
New monthly saving	2298.54	Rs/month
Total Investment	18600	Rs
Payback period	**8.09**	**months**

ENERGY PERFORMANCE ASSESSMENT OF FAN

1. MAIN COLLEGE BUILDING

OBSERVATION

College has installed old conventional induction motor fan which consumes 65W at full speed. It is recommended that replace old fan which are operated maximum usage per day with new energy efficient fan which consumes 28W at full speed.

ENERGY SAVING MEASURES

Floor	Room	Name	Qty	Watt	Hours of usage	No of Days in a month	Mthly kWh	New change watt	New mthly kWh	Mthly saving	Mthly saving	Total inv	Payback period
			No	W	Hrs	Days	kWh	W	kWh	kWh	Rs	Rs	months
1st Floor	109	College office	4	65	8	25	52	28	22.4	29.6	296	9600	32.43
		Cash room	1	65	5	25	8.125	28	3.5	4.625	46.25	2400	51.89
	108	Faculty room	2	65	3	25	9.75	28	4.2	5.55	55.5	4800	86.49
	107	Examination office	2	65	3	25	9.75	28	4.2	5.55	55.5	4800	86.49
	101	BA LLB-I-A	4	65	3	25	19.5	28	8.4	11.1	111	9600	86.49
	102	BA LLB-I-B	3	65	3	25	14.625	28	6.3	8.325	83.25	7200	86.49
	103	BA LLB-II	4	65	3	25	19.5	28	8.4	11.1	111	9600	86.49
2nd Floor		Library	8	65	8	25	104	28	44.8	59.2	592	19200	32.43
	201	LLB-1-A	4	65	3	25	19.5	28	8.4	11.1	111	9600	86.49
	202	LLB-1-B	3	65	3	25	14.625	28	6.3	8.325	83.25	7200	86.49

203	LLB-1-C	4	65	3	25	19.5	28	8.4	11.1	111	9600	86.49
206	Research cell	2	65	3	26	10.14	28	4.368	5.772	57.72	4800	83.16
302	BA LLB-III	3	65	3	33	19.305	28	8.316	10.989	109.89	7200	65.52
303	BA LLB-IV	4	65	3	35	27.3	28	11.76	15.54	155.4	9600	61.78
306	LLB I-D	3	65	3	40	23.4	28	10.08	13.32	133.2	7200	54.05
	LLM staff room	2	65	3	41	15.99	28	6.888	9.102	91.02	4800	52.74
		60				**387.01**		**166.71**	**220.3**	**1667.2**	**127200**	**76.30**

Particulars		
Monthly consumption of all fans	441.83	kWh/month
Total fans	92.00	nos
Fans to be replaced with new energy efficient fans	60.00	nos
Monthly consumption of 60 fans	387.01	kWh/month
New monthly consumption	166.71	kWh/month
New monthly saving	220.30	kWh/month
New monthly saving	2203	Rs/month
Total Investment	127200	Rs
Payback period	**57.74**	**months**

2. BOY'S HOSTEL

ENERGY SAVING MEASURES

Floor	Room	Name	Qty	watt	Hours of usage	No of Days in a month	Mthly kWh	change watt	New mthly kWh	Mthly saving	Mthly saving	Total inv	Payback period
			No	watt	hrs	days	kWh	watt	kWh	kWh	Rs	Rs	months
Ground floor	1	Room 1	1	65	6	25	9.75	28	4.2	5.55	58.39	2400	41.11
	2	Room 2	1	65	6	25	9.75	28	4.2	5.55	58.39	2400	41.11
	3	Room 3	1	65	6	25	9.75	28	4.2	5.55	58.39	2400	41.11
	4	Room 4	1	65	6	25	9.75	28	4.2	5.55	58.39	2400	41.11
	5	Room 5	1	65	6	25	9.75	28	4.2	5.55	58.39	2400	41.11
	6	Room 6	1	65	6	25	9.75	28	4.2	5.55	58.39	2400	41.11
	7	Room 7	1	65	6	25	9.75	28	4.2	5.55	58.39	2400	41.11
	8	Room 8	1	65	6	25	9.75	28	4.2	5.55	58.39	2400	41.11
	9	Room 9	1	65	6	25	9.75	28	4.2	5.55	58.39	2400	41.11
	10	Room 10	1	65	6	25	9.75	28	4.2	5.55	58.39	2400	41.11
	11	Room 11	1	65	6	25	9.75	28	4.2	5.55	58.39	2400	41.11
	12	Room 12	1	65	6	25	9.75	28	4.2	5.55	58.39	2400	41.11
	13	Room 13	1	65	6	25	9.75	28	4.2	5.55	58.39	2400	41.11
	14	Room 14	1	65	6	25	9.75	28	4.2	5.55	58.39	2400	41.11
	15	Room 15	1	65	6	25	9.75	28	4.2	5.55	58.39	2400	41.11
	16	Room 16	1	65	6	25	9.75	28	4.2	5.55	58.39	2400	41.11
	17	Room 17	1	65	6	25	9.75	28	4.2	5.55	58.39	2400	41.11
	18	Room 18	1	65	6	25	9.75	28	4.2	5.55	58.39	2400	41.11

	19	Room 19	1	65	6	25	9.75	28	4.2	5.55	58.39	2400	41.11
	20	Room 20	1	65	6	25	9.75	28	4.2	5.55	58.39	2400	41.11
	21	Room 21	1	65	6	25	9.75	28	4.2	5.55	58.39	2400	41.11
	22	Room 22	1	65	6	25	9.75	28	4.2	5.55	58.39	2400	41.11
	23	Room 23	1	65	6	25	9.75	28	4.2	5.55	58.39	2400	41.11
1st Floor	24	Room 24	2	65	6	25	19.5	28	8.4	11.1	116.77	4800	41.11
	25	Room 25	1	65	6	25	9.75	28	4.2	5.55	58.39	2400	41.11
	26	Room 26	1	65	6	25	9.75	28	4.2	5.55	58.39	2400	41.11
	27	Room 27	1	65	6	25	9.75	28	4.2	5.55	58.39	2400	41.11
	28	Room 28	1	65	6	25	9.75	28	4.2	5.55	58.39	2400	41.11
	29	Room 29	1	65	6	25	9.75	28	4.2	5.55	58.39	2400	41.11
	30	Room 30	1	65	6	25	9.75	28	4.2	5.55	58.39	2400	41.11
	31	Room 31	1	65	6	25	9.75	28	4.2	5.55	58.39	2400	41.11
	32	Room 32	1	65	6	25	9.75	28	4.2	5.55	58.39	2400	41.11
	33	Room 33	1	65	6	25	9.75	28	4.2	5.55	58.39	2400	41.11
	34	Room 34	1	65	6	25	9.75	28	4.2	5.55	58.39	2400	41.11
	35	Room 35	1	65	6	25	9.75	28	4.2	5.55	58.39	2400	41.11
	36	Room 36	1	65	6	25	9.75	28	4.2	5.55	58.39	2400	41.11
	37	Room 37	1	65	6	25	9.75	28	4.2	5.55	58.39	2400	41.11
	38	Room 38	1	65	6	25	9.75	28	4.2	5.55	58.39	2400	41.11
	39	Room 39	1	65	6	25	9.75	28	4.2	5.55	58.39	2400	41.11
	40	Room 40	1	65	6	25	9.75	28	4.2	5.55	58.39	2400	41.11
	41	Room 41	1	65	6	25	9.75	28	4.2	5.55	58.39	2400	41.11
	42	Room 42	1	65	6	25	9.75	28	4.2	5.55	58.39	2400	41.11
	43	Room 43	1	65	6	25	9.75	28	4.2	5.55	58.39	2400	41.11
	44	Room 44	1	65	6	25	9.75	28	4.2	5.55	58.39	2400	41.11
	45	Room 45	1	65	6	25	9.75	28	4.2	5.55	58.39	2400	41.11

	52	Room 46	1	65	6	25	9.75	28	4.2	5.55	58.39	2400	41.11
		Room 50	1	65	6	25	9.75	28	4.2	5.55	58.39	2400	41.11
		Room 51	1	65	6	25	9.75	28	4.2	5.55	58.39	2400	41.11
		Room 52	1	65	6	25	9.75	28	4.2	5.55	58.39	2400	41.11
		Hall	17	36	6	25	91.8	28	71.4	20.4	214.61	40800	190.11
1st Floor		ITI office	2	36	6	25	10.8	28	8.4	2.4	25.25	4800	190.11
			69	**3452**			**590.1**		**289.8**	**300.3**	**3159.16**	**165600**	**52.42**

Particulars		
Monthly consumption of all fans	619.35	kWh/month
Total fans	75	nos
Fans to be replaced with new energy efficient fans	69	nos
Monthly consumption of 69 fans	590.10	kWh/month
New monthly consumption	289.8	kWh/month
New monthly saving	300.30	kWh/month
New monthly saving	3159.16	Rs/month
Total Investment	165600	Rs
Payback period	**52.42**	**months**

3. GIRL'S HOSTEL

ENERGY SAVING MEASURES

Room	Name	Qty	Watt	Hours of usage	No of Days in a month	Mthly kWh	Change watt	New mthly kWh	Mthly saving	Mthly saving	Total inv	Payback period
	Girl's hostel	No	watt	hrs	days	kWh	watt	kWh	kWh	Rs	Rs	months
1	Room 1	1	65	6	25	9.75	28	4.2	5.55	83.92	2400	28.60
2	Room 2	1	65	6	25	9.75	28	4.2	5.55	83.92	2400	28.60
3	Room 3	1	65	6	25	9.75	28	4.2	5.55	83.92	2400	28.60
4	Room 4	1	65	6	25	9.75	28	4.2	5.55	83.92	2400	28.60
5	Room 5	1	65	6	25	9.75	28	4.2	5.55	83.92	2400	28.60
6	Room 6	1	65	6	25	9.75	28	4.2	5.55	83.92	2400	28.60
7	Room 7	1	65	6	25	9.75	28	4.2	5.55	83.92	2400	28.60
8	Room 8	1	65	6	25	9.75	28	4.2	5.55	83.92	2400	28.60
9	Room 9	1	65	6	25	9.75	28	4.2	5.55	83.92	2400	28.60
10	Room 10	1	65	6	25	9.75	28	4.2	5.55	83.92	2400	28.60
11	Room 11	1	65	6	25	9.75	28	4.2	5.55	83.92	2400	28.60
12	Room 12	1	65	6	25	9.75	28	4.2	5.55	83.92	2400	28.60
13	Room 13	1	65	6	25	9.75	28	4.2	5.55	83.92	2400	28.60
14	Room 14	1	65	6	25	9.75	28	4.2	5.55	83.92	2400	28.60
15	Room 15	1	65	6	25	9.75	28	4.2	5.55	83.92	2400	28.60
16	Room 16	1	65	6	25	9.75	28	4.2	5.55	83.92	2400	28.60
17	Room 17	1	65	6	25	9.75	28	4.2	5.55	83.92	2400	28.60
18	Room 18	1	65	6	25	9.75	28	4.2	5.55	83.92	2400	28.60

19	Room 19	1	65	6	25	9.75	28	4.2	5.55	83.92	2400	28.60
20	Room 20	1	65	6	25	9.75	28	4.2	5.55	83.92	2400	28.60
21	Room 21	1	65	6	25	9.75	28	4.2	5.55	83.92	2400	28.60
22	Room 22	1	65	6	25	9.75	28	4.2	5.55	83.92	2400	28.60
23	Room 23	1	65	6	25	9.75	28	4.2	5.55	83.92	2400	28.60
24	Room 24	1	65	6	25	9.75	28	4.2	5.55	83.92	2400	28.60
25	Room 25	1	65	6	25	9.75	28	4.2	5.55	83.92	2400	28.60
26	Room 26	1	65	6	25	9.75	28	4.2	5.55	83.92	2400	28.60
27	Room 27	1	65	6	25	9.75	28	4.2	5.55	83.92	2400	28.60
28	Room 28	1	65	6	25	9.75	28	4.2	5.55	83.92	2400	28.60
29	Room 29	1	65	6	25	9.75	28	4.2	5.55	83.92	2400	28.60
30	Room 30	2	65	6	25	19.5	28	8.4	11.1	167.83	4800	28.60
31	Room 31	2	65	6	25	19.5	28	8.4	11.1	167.83	4800	28.60
32	Room 32	2	65	6	25	19.5	28	8.4	11.1	167.83	4800	28.60
		41	**2275**			**341.25**		**147.00**	**194.25**	**2937.06**	**84000**	**28.60**

Particulars		
Monthly consumption of all fans	365.64	kWh/month
Total fans	41	nos
Fans to be replaced with new energy efficient fans	35	nos
Monthly consumption of 35 fans	341.25	kWh/month
New monthly consumption	147	kWh/month
New monthly saving	194.25	kWh/month
New monthly saving	2937.06	Rs/month
Total Investment	84000	Rs
Payback period	**28.60**	**months**

SAVING BY TARIFF CHANGE AND ELECTRICITY DUTY

OBSERVATION

1. Existing tariff of girl's college is LT-3 phase residential. But applicable tariff to girl's hostel is LT-X-B-I (0-20kW) as per MSEDCL tariff order
2. In electricity bill of main college, boy's hostel and girl's hostel pays electricity duty. As per Maharashtra electricity duty act-1948 and revised-2016 it is exempted.

SAVINGS MEASURES

SAVINGS DUE TO ELECTRICITY DUTY

Particulars		
Average monthly electricity duty of main college	1000	Rs/month
Average monthly electricity duty of boy's hostel	5912	Rs/month
Average monthly electricity duty of girl's hostel	6081.38	Rs/month
Total average electricity duty	12993.38	Rs/month
Investment	10000	Rs/month
Payback period	**0.77**	**months**

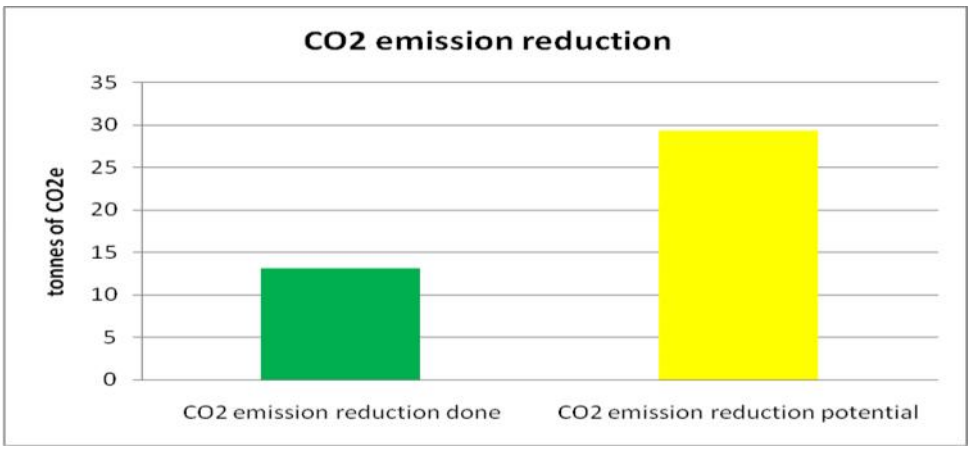
SAVINGS DUE TO TARIFF CHANGE OF GIRL'S HOSTEL

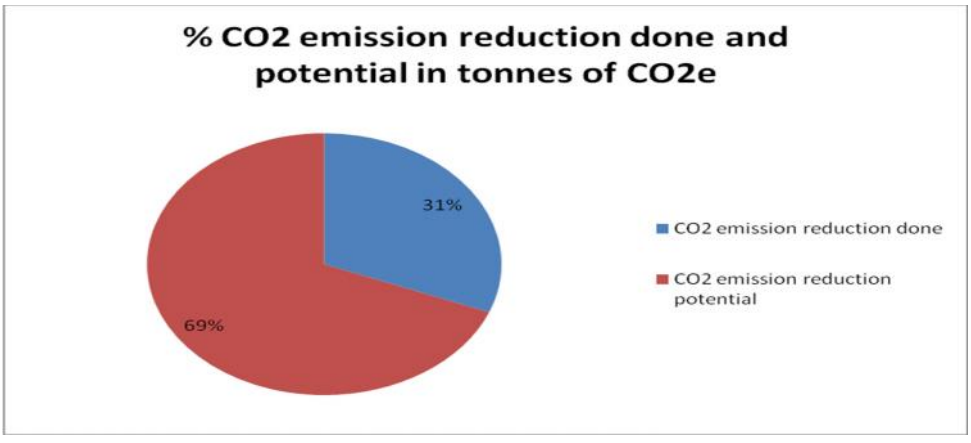
Particulars		
Existing average unit rate as per residential tariff	15.12	Rs/kWh
Average unit rate as per new tariff	10.52	Rs/kWh
Average unit rate saving	4.6	Rs/kWh
Average monthly energy consumption of girl's hostel	2912	kWh/month
Savings per month	13395.2	Rs/month
Investment	50000	Rs
Payback period	3.73	months

CO_2 EMISSION REDUCTION

Particulars		
Energy saved by new energy efficient technology	165	kWh/month
Energy saved by energy efficient technology	1980	kWh/year
Energy saved by renewable energy	1125	kWh/month
Energy saved by renewable energy	13500	kWh/year
CO2 emission reduction done	**13.16**	**tonnes of CO2e**

Particulars		
Energy saving potential by new energy efficient technology	1190.08	kWh/month
Energy saving potential by new energy efficient technology	14280.96	kWh/year
Energy saved by renewable energy	1687.5	kWh/month
Energy saved by renewable energy	20250	kWh/year
CO2 emission reduction potential	**29.35**	**tonnes of CO2e**





GREEN AUDIT

EXCECUTIVE SUMMARY

Sr no	Location	Area	Objective/Purpose	Recommendation/Status
1	Boy's and Girl's hostel	Solar Water Heating System	To save conserve the energy and reduce the CO2 emission reduction by energy consumption	Implemented
2	College main building	Solar Photovoltaic System	To generate energy by renewable sources and reduce the CO2 emissions	Implemented
3	All college campus	Tree plantation/ Green belt cover	To increase the forest cover. Reduce the Air, Noise pollution, reduce CO2 emissions etc	Regularly implemented every year
4	All buildings	Tap water reducers	To save the water	Need to be implement
5	College Main building, Boy's and Girl's hostel	Window direction of the rooms	North-South direction. Reduces load of lighting, Fan during summer and sinter season.	Good
6	College main building	Waste management- Solid waste	Reduce the CO2 emissions by recycling of solid waste	Regularly implemented and maintained every month.
7	College campus	Waste management- Organic waste	Reduces the landfill pollution and green-house gases.	Implemented
8	College main building	Waste management- E-waste	Reduce the CO2 emissions by recycling of solid waste. Also Save environment from hazardous materials.	Need to be implement

9	College campus	Rain water harvesting	Save water. Increases the groundwater recharge.	Implemented
10	College campus	Cleanliness drive and awareness campaign	Awareness and among the people or masses about importance cleanliness	Regularly conducting the activity by college
11	College campus	Plastic free campaign	Save environment from non recycling and hazardous materials.	Taken initiative for implementation
12	College campus	No vehicle day	Reduces the CO2 emissions	Need to be improved frequency.

SOLAR WATER HEATING SYSTEM

OBSERVATION

1. In Boy's hostel and Girl's hostel, there are Solar Water Heating systems are installed for the purpose of water heating instead of electric heaters.
2. Total capacity of Solar Water Heating system is 1000 litres/day each.
3. No any auxiliary heaters are used in solar water heating system in the morning.

CO_2 EMISSION REDUCTION

Particulars		
Hot water temperature	60	deg C
Cold water temperature	25	deg C
Temperature difference(delta T)	35	deg C
Volume of water	2000	lit
Volumetric flow	2000	lit/day
Hot water temperature	60	deg C
Enthalpy of cold water	25.04	kcal/kg
Enthalpy of Hot water	60	kcal/kg
Enthalpy difference	34.96	kcal/kg
Amount of heat used	69920	kcal
Power used for heating	81.30	kW
Monthly kWh	2479.72	kWh/month
Saving kWh	2479.72	kWh/month
Saving kWh	29756.65	kWh/year
Saving Rs	37493.38	Rs/month
CO2 emission reduction/ year	**25.29**	**tonnes of CO2e**

SOLAR PHOTOVOLTAIC SYSTEM

OBSERVATION

1. In main college building, there is Solar Photovoltaic System is installed for the purpose of kWh units generation
2. Total capacity of Solar Photovoltaic System is 10kWp

*Solar PV system is only six month old so Performance Guarantee Test is not required.

Particulars		
Total capacity of Solar PV system	10	kWp
Units generation per month	1125	kWh/month
Units generation per year	13500	kWh/year
CO2 emission reduction/year	**11.48**	**tonnes of CO2e**

TAP WATER REDUCER

1. TAP WATER REDUCER

Conventional Tap water system	Tap water system with Reducer
	
Existing tap water system uses more water while during purpose of washing of utensils, hands etc in college.	**Used reducer to tap water for purpose of washing of utensils, hands etc which reduces flow of water and ultimately saves the water.**
⊘	√

RECOMMENDATION

It is recommended that to use water reducer for water taping for save the water.

WINDOW DIRECTION IN THE COLLEGE

Direction of Windows in the college are North and South directions

- **Directions of windows in the colleges are North-South directions.**
- **Due to this rooms or offices get good ventilation and light/illumination.**
- **It saves Lighting and Fan consumption in summer and winter season considerably.**

Good

TREE PLANTATIONAND TREE OR FOREST COVER IN THE COLLEGE PREMISES

Tree-planting is the process of transplanting tree seedlings, generally for forestry, land reclamation, or landscaping purpose. It differs from the transplantation of larger trees in arboriculture, and from the lower cost but slower and less reliable distribution of tree seeds.

In silviculture the activity is known as reforestation, or afforestation, depending on whether the area being planted has or has not recently been forested. It involves planting seedlings over an area of land where the forest has been harvested or damaged by fire, disease or human activity. Tree planting is carried out in many different parts of the world, and strategies may differ widely across nations and regions and among individual reforestation companies.

Tree planting is grounded in forest science, and if performed properly can result in the successful regeneration of a deforested area. Reforestation is the commercial logging industry's answer to the large-scale destruction of old growth forests, but a planted forest rarely replicates the biodiversity and complexity of a natural forest. Because trees remove carbon dioxide from the air as they grow, tree planting can be used as agro engineering technique to remove CO2from the atmosphere. Desert greening projects are also motivated by improved biodiversity and reclamation of natural water systems, but also improved economy and social welfare due to increased number of jobs in farming and forestry.

College has planted the trees campus area to make it more environments friendly.

Tree or Forest Cover in College Campus

ACTIVITY ORGANIZED REPORT

TREE PLANTATION- 2019-20

(Academic Year: 2019-20)

Name of activity organized	Tree Plantation
Title of the activity	Tree Plantation
Date of activity organized	22/07/2019
Place of the activity	College campus
No of participants (Students+ Staff)	Approximate 500
Name of the sponsored organization	Yashwantrao Chavan Law College, Pune
Objective of the activity	To save environment, reduce CO2 emission and global warming
Outcome of the activity	Improve Air quality, reduces soil erosion, noise pollution
Trees are planted	Banyan, (Ficus benghalensis), Neem, (Azadirachta indica), Peepal Ficus religiosa, Almond (Prunus dulcis etc
Trees planted who maintained	College gardener and college students

Tree Plantation Activity in the College Campus

Tree Plantation Activity in the College Campus

WASTE MANAGEMENT- E-WASTE

Electronic waste or e-waste describes discarded electrical or electronic devices. Used electronics which are destined for reuse, resale, salvage, recycling, or disposal are also considered e-waste. Informal processing of e-waste in developing countries can lead to adverse human health effects and environmental pollution.

Electronic scrap components, such as CPUs, contain potentially harmful components such as lead, cadmium, beryllium, or brominates flame retardants. Recycling and disposal of e-waste may involve significant risk to health of workers and communities in developed countries and great care must be taken to avoid unsafe exposure in recycling operations and leaking of materials such as heavy metals from landfills and incinerator ashes.

RECOMMENDATION

College need to have E-waste management policy and all the E-waste disposals generated in the college campus should be disposed/ reuse as per standard procedures/norms

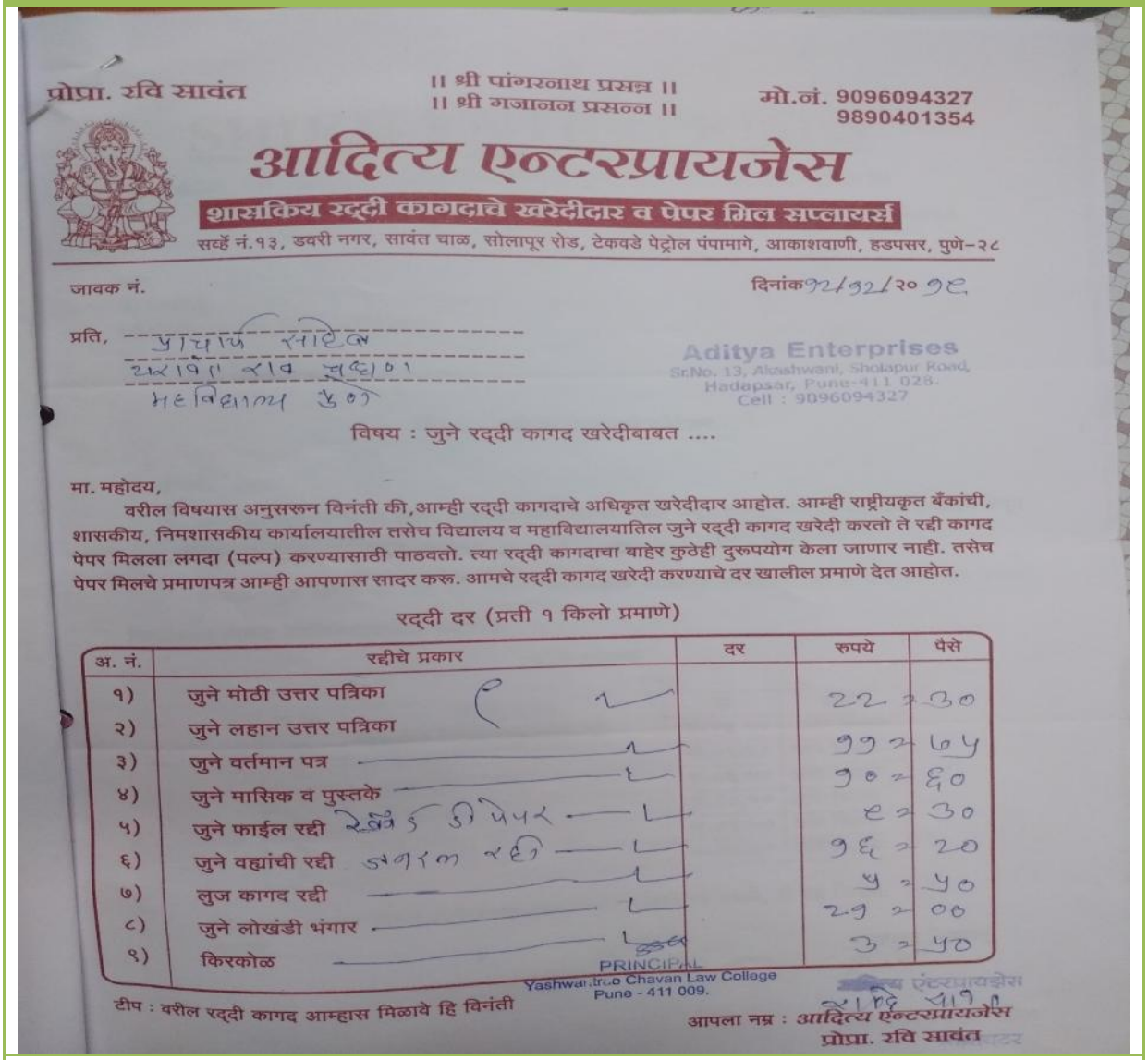
The environmental impact of the processing of different electronic waste components

E-Waste Component	Process Used	Potential Environmental Hazard
Cathode ray tubes (used in TVs, computer monitors, ATM, video cameras, and more)	Breaking and removal of yoke, then dumping	Lead, barium and other heavy metals leaching into the ground water and release of toxic phosphor
Printed circuit board (image behind table – a thin plate on which chips and other electronic components are placed)	De-soldering and removal of computer chips; open burning and acid baths to remove metals after chips are removed.	Air emissions and discharge into rivers of glass dust, tin, lead, brominated dioxin, beryllium cadmium, and mercury
Chips and other gold plated components	Chemical stripping using nitric and hydrochloric acid and burning of chips	PAHs, heavy metals, brominated flame retardants discharged directly into rivers acidifying fish and flora. Tin and lead contamination of surface and groundwater. Air emissions of brominated dioxins, heavy metals, and PAHs
Plastics from printers, keyboards, monitors, etc.	Shredding and low temp melting to be reused	Emissions of brominated dioxins, heavy metals, and hydrocarbons
Computer wires	Open burning and stripping to remove copper	PAHs released into air, water, and soil.

WASTE MANAGEMENT- SOLID WASTE

College have good policy and maintained the record for solid waste generated in the college like old newspapers, books, scrap boxes, etc.

Record of the Solid Waste Management



प्रोप्रा. रवि सावंत

॥ श्री पांगरनाथ प्रसन्न ॥
॥ श्री गजानन प्रसन्न ॥

मो.नं. 9096094327
9890401354

आदित्य एन्टरप्रायजेस

शासकिय रद्दी कागदाचे खरेदीदार व पेपर मिल सप्लायर्स

सर्व्हे नं.१३, डवरी नगर, सावंत चाळ, सोलापूर रोड, टेकवडे पेट्रोल पंपामागे, आकाशवाणी, हडपसर, पुणे-२८

जावक नं.

दिनांक 22/12/2019

प्रति, प्राचार्य साहेब
यशवंतराव चव्हाण लॉ महाविद्यालय पुणे

Aditya Enterprises
Sr.No. 13, Akashwani, Solapur Road,
Hadapsar, Pune-411 028.
Cell : 9096094327

विषय : जुने रद्दी कागद खरेदीबाबत ....

मा. महोदय,

वरील विषयास अनुसरून विनंती की, आम्ही रद्दी कागदाचे अधिकृत खरेदीदार आहोत. आम्ही राष्ट्रीयकृत बँकांची, शासकीय, निमशासकीय कार्यालयातील तसेच विद्यालय व महाविद्यालयातिल जुने रद्दी कागद खरेदी करतो ते रद्दी कागद पेपर मिलला लगदा (पल्प) करण्यासाठी पाठवतो. त्या रद्दी कागदाचा बाहेर कुठेही दुरुपयोग केला जाणार नाही. तसेच पेपर मिलचे प्रमाणपत्र आम्ही आपणास सादर करू. आमचे रद्दी कागद खरेदी करण्याचे दर खालील प्रमाणे देत आहोत.

रद्दी दर (प्रती १ किलो प्रमाणे)

अ. नं.	रद्दीचे प्रकार	दर	रुपये	पैसे
१)	जुने मोठी उत्तर पत्रिका		22	30
२)	जुने लहान उत्तर पत्रिका		99	65
३)	जुने वर्तमान पत्र		90	60
४)	जुने मासिक व पुस्तके		8	30
५)	जुने फाईल रद्दी		96	20
६)	जुने वह्यांची रद्दी		4	40
७)	लुज कागद रद्दी		29	00
८)	जुने लोखंडी भंगार		3	40
९)	किरकोळ			

PRINCIPAL
Yashwantrao Chavan Law College
Pune - 411 009.

टीप : वरील रद्दी कागद आम्हास मिळावे हि विनंती

आपला नम्र : आदित्य एन्टरप्रायजेस
प्रोप्रा. रवि सावंत

- College have taken good initiative for solid waste management in the college.
- College given the solid waste generated in the college to the authorised third party viz. Aditya Enterprises periodically.
- So Solid waste in the college is managed properly through authorised channel for recycling it.

WASTE MANAGEMENT- ORGNAIC WASTE

In the college there college Canteen, Boy's and Girl's hostel and Trees which are mainly generated wet and dry solid waste.

Record of the Solid Waste Management

- College have main centralised facility in the premises where wet and dry waste generated is collected.
- Collected waste is further processed internally and makes the organic waste instead of landfill. Generated organic compost is used for garden trees.
- College has already implemented the self processed internally organic waste management system.

RAIN WATER HARVESTING

There is a good potential for rain water harvesting in a college. This water can be used for purposes like gardening, bores, wells, etc.

Rain Water Harvesting Well in the College

- College have taken good initiative at campus level for rain water harvesting.
- College have centralised rain water harvesting well where all rain water is collected.
- Rain water is by gravity is comes to the well by piping made at various location in college premises.

CLEANLINESS DRIVE AND AWARENESS CAMPAIGN

ACTIVITY ORGANIZED REPORT

CLEANLINESS DRIVE AND AWARNESS CAMPAIGN- 2019-20

(Academic Year: 2019-20)

Name of activity organized	Cleanliness Drive and Awareness Campaign
Title of the activity	Cleanliness Drive and Awareness campaign
Date of activity organized	19/09/2019 25/09/2019
Place of the activity	College campus, Aryaneshwar Area in Pune
No of participants (Students+ Staff)	140
Participants	NSS students and Other college students and Staff etc
Name of the sponsored organization	Yashwantrao Chavan Law College, Pune
Objective of the activity	- Removal of plastic debris. - The plastic debris is responsible for the environmental harm. - As the plastic does not decompose or dissolve and poses serious harm to health - Clean the area in Aryaneshwar which is hampered due to heavy rain fall and flood in the month of Sepember-2019 - To aware the people about the diseases created due to unclean area like Malaria, Dengue etc
Outcome of the activity	- To aware the people about importance of cleanliness. - To save the environment from hazardous materials like plastic debris this is not easily decomposed.

Cleanliness Drive and Awareness Campaign

Cleanliness Drive and Awareness Campaign

PLASTIC FREE CAMPUS CAMPAIGN

College have taken initiative for single used plastic free in the campus. As single used plastic is hazardous to the environment as it is once used cannot be recycled.
So it is good initiative taken by college in 2019-20 year under the guidance of college principal.

ACTIVITY ORGANIZED REPORT

SINGLE USED PLASTIC FREE - 2019-20

(Academic Year: 2019-20)

Name of activity organized	**Single used plastic Campaign**
Title of the activity	Single used plastic Campaign
Date of activity organized	01/11/2019
Place of the activity	College campus
Guide	Principal- Ms Dr Shubhada Gholap Madam
No of participants (Students+ Staff)	All students and staff
Name of the sponsored organization	Yashwantrao Chavan Law College, Pune
Objective of the activity	- Single used plastic is hazardous to the environment as it is once used cannot be recycled

Single used plastic Campaign

NO VEHICLE DAY

Many of the college students and staff use the private or own vehicle to come college. It contributes the CO2 emission due to burning of petrol or diesel in the vehicles.

RECOMMENDATION

It is recommended to follow 1 day per month no vehicle day in the college campus. Instead of that use the public transport to reduce the CO2 emission.

ANNEXTURE

TOTAL SAVING- MAIN COLLEGE

Particulars		
Monthly consumption	658.72	kWh/month
New monthly consumption	263.19	kWh/month
New monthly saving	340.71	kWh/month
New monthly saving	**3407.1**	**Rs/month**
Total Investment	139200	Rs
Payback period	**40.86**	**months**

TOTAL SAVING- BOY'S HOSTEL

Particulars		
Monthly consumption	996	kWh/month
New monthly consumption	492.9	kWh/month
New monthly saving	503.1	kWh/month
New monthly saving	**5292.61**	**Rs/month**
Total Investment	188100	Rs
Payback period	**35.54**	**months**

TOTAL SAVING- GIRL'S HOSTEL

Particulars		
Monthly consumption	642.8	kWh/month
New monthly consumption	296.53	kWh/month
New monthly saving	346.27	kWh/month
New monthly saving	**5235.60**	**Rs/month**
Total Investment	102600	Rs
Payback period	**19.60**	**months**