



Technology, Education, Research and Rehabilitation for the Environment
Leading platform for development through Alternate Path

Certificate

This is certify that

RAJARAMBAPU INSTITUTE OF TECHNOLOGY

Has successfully assessed for Green audit by TERRE team consisted of Mr. Nitin Joshi, Mr. Appasaheb Thange and Mr. Dhananjay Kulkarni. A final Green audit report has been submitted to the college with detailed audit information.

Assessment includes Biodiversity Audit, Solid Waste Management Audit, Water Audit, and Energy Audit. Some suggestions were also suggested in the report for making the campus more greener, cleaner and energy efficient.

Vinitaa M. Apte



Dr. Vinitaa Apte

President, TERRE Policy Centre

GREEN AUDIT REPORT

RAJARAMBAPU INSTITUTE OF TECHNOLOGY

RAJARAMNAGAR, ISLAMPUR, SANGLI.

Introduction -

Rajarambapu Institute of Technology (RIT), Rajaramnagar, Tal- Walwa, Dist. - Sangli was established in the year 1983. The College has been accredited by NBA AICTE, The Institution of Engineers (India) Kolkata, TEQUIP funded 'A' Grade ISO 9001-2008 certified Institute. Affiliated to Shivaji University, Kolhapur. The College is located near Islampur, 7 km away from Peth Naka off Pune - Bangalore highway.

RIT has a green beautiful campus of 17 hectare and the total built up area (including under construction) is 53028 Sqm. RIT has emerged as a leading technological Institute in Western Maharashtra through its dedicated and disciplined approach to provide quality technical education over a period more than thirty years.

Number of students in the College	3000 (including UG and PG)
Teaching Staff	225
Non-Teaching Staff	175
Others	600
Total	4000

The College buildup area includes:–

- | | |
|----------------------------|-------------------|
| 1. Administrative Building | 2. Hostel |
| 3. Library | 4. Staff Quarters |
| 5. Guest House | 6. Workshops |
| 7. Laboratory | 8. Play Ground |
| 9. Kitchen | 10. Garbage Dump |
| 11. Garden Area | 12. Parking |

The college campus is surrounded by Municipal Landfill, Open drainage and sugar factory which also cause some problems of odor, emission of Short Lived Climate Pollutant, Flies, etc.

TERRE Policy prepared a Green Audit Report after visiting and doing field assessment of the college campus. The team consisted of Mr. Nitin K Joshi (TERRE Policy Centre), Mr. Appasaheb Thange (TERRE Policy Centre) and Mr. Dhananjay Kulkarni (Co-ordinator).

This Audit Report is based on the following five major points –

1. Biodiversity Audit
2. Solid Waste Management
3. Water Audit
4. Energy Audit

1. Biodiversity Audit –

Biodiversity generally refers to the variety and variability of life on earth. It is a measure of the variety of organisms present in different ecosystems.. All species of plants taken together are known as flora and about 70,000 species of plants are known to date. All species of animals taken together are known as fauna which includes birds, mammals, fish, reptiles, insects, crustaceans, mollusks, etc. It is an essential component of the nature and it ensures the survival of human species by providing food, fuel, shelter, medicines and other resources to mankind.

The census of Flora and Fauna is the major part of the Green Audit. The total Green cover area in RIT campus is about 10,800 Sq. m. and distributed among various parts of Campus Area and Residential area.

The following flora species found in campus area during the field assessment.

Sr. No.	Local Name of the tree (English Name)	Botanical/Scientific Name	Number	Height(Appr. In feet)
1.	नारळ (Coconut)	Cocus Nucifera	32	20
2.	बदाम (Almond)	Prunus Dulcis	16	25-30
3.	अशोक	Saraca Asosa	33	35-40
4.	पाम	Borassus	33	20
5.	गुलमोहोर (Gulmohor)	Delonix regia Rafin	22	12-15
6.	मोरपंखी	Thuja Occidentalis	73	03- 05
7.	सिल्व्हर ओक(Silver Oak)	Grevillea robusta	21	35-40
8.	चंदन	Santalum album	03	12-15
9.	फायस्कस (Ficus)	Ficus Carica	16	05-15
10	आंबा(Mango)	Mangifera Indica	06	15-20
11	कण्ठेरी	Cascabela thevetia	15	14-15
12	वड (Banyan)	Ficus benghalensis	03	35-40

13	चिंच (Tamarind)	Tamarindus Indica	01	15-20
14	जांभळ	Syzygium Cumini	01	20-25
15	लिंब	Azadaracta Indica	02	
16	जंगली बहावा (Bahava)	Cassia Fistula Linn	09	35-40
17	ख्रिसमस (Christmas)	Araucania columnaris	08	25-30
18	हुंबर		01	12-13
19	एक्झोरा (Ixora)	Ixora Coccinea	24	05-06
20	फुलझाडे	Flowers	17	
Loan cover area –		34611 + 17850= 52461	Sq. feet	

The following flora species found in residential area during the field assessment

Sr. No	Local Name of the tree (English Name)	Botanical/Scientific Name	Number	Height(Appro. in feet)
1.	नारळ (Coconut)	Cocus Nucifera	141	20
2.	बदाम (Almond)	Prunus Dulcis	21	25-30
3.	अशोक	Saraca Asosa	47	35-40
4.	आरेका पाम+ मोठे पाम	Borassus	71	20
5.	गुलमोहोर (Gulmohor)	Delonix regia Rafin	04	12-15



Technology, Education, Research and Rehabilitation for the Environment
Leading platform for development through Alternate Path

6.	मोरपंखी	Thuja Occidentalis	62	03- 05
7.	अंबा(Mango)	Mangifera Indica	18	15-20
8.	लिंबु(Lemon)	Citrus aurantium	02	05-06
9.	चिकू	Achras Sapota	07	10-12
10.	चिंच (Tamarind)	Tamarindus Indica	02	15-20
11.	जांभळ	Syzygium Cumini	01	20-25
12.	ख्रिसमस (Christmas)	Araucania columnaris	02	25-30
13.	हुंवर		03	12-13
14.	पारिजातक	Nyctanthes arbor-tristis	02	12-14
15.	फणस(Jack Fruit)	Atrocarpus integra	01	15-18
16.	पिपळ (Peepal)	Ficus Religiosa Linn	02	25-30
17.	सागवान(teak)	Tectona Grandis Linn	307	50-55
18.	निलगिरी	Eucalyptus globulus	13	30-35
19.	आवळा(Indian Gooseberry)	Emblica officianalis	01	12-15
20.	एकझोरा (Ixora)	Ixora Coccinea	02	05-06
	Loan cover area –		1800	Sq.m

The list of newly planted trees seen in the campus was:

Sr. No.	Local Name of the tree (English Name)	Botanical/Scientific Name	Number
1.	सिल्व्हर ओक (Silver Oak)	Grevillea robusta	40
2.	सागवान(teak)	Tectona Grandis Linn	307
3.	सोनचाफा (champak)	Michelia Champaca	20
4.	पेरू (Guava)	Psidium Guajava	10
5.	सप्तपर्णी (Devil Tree)	Alstonia Sclolaris	20
6.	करंजी	Derris Indica	20
7.	आवळा(Indian Gooseberry)	Emblica officianalis	20
8.	चिंच (Tamarind)	Tamarindus Indica	10
9.	पळस (Palas)	Butea monsperma Kuntre	10
10.	पुत्रपिजा		10
11.	बेल (Bel)	Aegle marmelos correa	05
12.	पाम	Borassus	20
13.	डालिंब (Pomegrante)	Punica granatum	10
14.	आंबा(Mango)	Mangifera Indica	50



Technology, Education, Research and Rehabilitation for the Environment
Leading platform for development through Alternate Path

15	नारळ (Coconut)	Cocus Nucifera	100
16	सिताफळ (Custard Apple)	Annona Squamosa	20
17	लिंबु (Lemon)	Citrus aurantium	02
18	शेवगा (Horse Radish)	Moringa oleifera	20
19	गुलमोहोर (Gulmohor)	Delonix regia Rafin	30
20	बकुळ (Indian Medaller)	Mimusops elengi	30

The list of the birds seen in the campus is as follow.

Sr. No.	Local Name of the Bird (English Name)	Scientific Name
1.	कावळा (crow)	Corvus brachyrhynchos
2.	कोकिळा (koel)	Eudynamys scolopaceus
3.	बुलबुल (Bulul)	Pycnonotidae
4.	सिंजीर (Hamming bird)	Trochilide
5.	खाटिक (Common Woodshrike)	Tephrodornis pondicerianus
6.	व्हला (Eurasian Collared Dove)	Streptopelia decaocto
7.	पारवा	

8.	धोबी चिमणी (sparrow)	Passeridae
9.	कबुतर (Pigeons)	Columbidae
10.	ब्राम्हणी घार (Red kite bird)	Milvus
11.	बहिरी ससाणा (Eurasian Sparrowhawk)	Accipiter nisus
12.	पोपट (Parrot)	Psittaciformes
13.	साळूंखी (Common hoopoe)	Acridotheres tristis
14.	सुतार पक्षी (Wood pecker)	Picidae
15.	कुदळ्या (Black headed ibis)	Threskiornis melanocephalus
16.	गाय बगळा (cattle egret)	Ardeidae
17.	हुदहुद (Common Hoopoe)	Upupa epops
18.	वेडा राघू (Green Bee eater)	Merops orientalis
19.	पावश्या (Common hawk-cuckoo)	Hierococcyx varius

SUGGESTIONS:-

1. Plantation of local species and indigenous species of plants are preferred in the area. These species also attract many birds for nesting which helps in increase in bird biodiversity in the campus. These species can help in facilitating the environment for later successional, longer-lived species whose end products are more valuable.

2. Name plate for each plant species with their local name, scientific name, and important uses should be indicated properly. The correct use of formal scientific names of species is key to accurate communication, but despite the simplicity of the system, it is rarely done right. All labels need to be placed so students, teachers and visitors can easily view and understand the importance of planting them.
3. Garden Waste should not be burned, they are used for composting and the compost is also used of gardening.

2. Solid Waste Management

Source of Waste:-

Solid wastes are any discarded or abandoned materials. Solid wastes can be solid, liquid, and semi-solid or containerized gaseous material. The campus generates biodegradable, non-biodegradable and hazardous waste. It is seen that primary collection of waste is done by equipment such as dustbins, small trollies and dumped at open sites masonry bins are used for temporary bulk storage, which necessitates multiple handling of waste. There is no proper system and equipment to segregate the waste at the source. Hence the waste collected at the dump yard is of all categories.

Bio-Degradable Waste	Non-Biodegradable Waste	Hazardous Waste
<ol style="list-style-type: none"> 1. Kitchen Waste, 2. Paper waste, 3. Civil Debris, 4. Furniture Waste, 5. Garden waste. 	<ol style="list-style-type: none"> 1. Laboratory waste, 2. Workshop waste, 3. E- Waste. 	<ol style="list-style-type: none"> 1. Glass, 2. Mercury 3. Fumes from chemical laboratory.

Solid Waste Management:-

Out of the whole waste generated from the campus some waste is reused, some waste issued as composting, some waste recycled some waste is resale some waste is landfilled. The campus follows 3 R facilities i.e. Reuse, Recycle and Reduce. Composting of garden waste is also done at campus. Kitchen waste is used in Bio Gas generation. There is third party which does the segregation of required waste. But most of the part of waste is either burned or it is given to Municipal Corporation. The following methods are used to processing the waste.

Composting: - The partial biodegradable waste (Garden Waste, Kitchen Waste, etc.) generated from the campus is used for composting. The collage has the 2 m³ of composting plant. But this plant is not working properly due to low maintenance.

Vermicomposting:-The waste generated from the campus such as landscaping waste, kitchen waste is used to run vermicomposting plant situated near boys hostel. This plant also not managed properly.

Recycling:-The some of the gray water waste generated from the campus which is been recycled using the gray water treatment plant of about 4500 lit. / Day capacity. This treatment plant removes TS-80%, BOD- 82%, and COD -80%. The plant works with efficiency of about 80-85 %. The water treated from this plant is further used for gardening.

Biogas Plant:- The kitchen waste from the canteen, mess is used to run the biogas plant installed near the mess. There are two biogas plants. The kitchen waste first fed into shredder and then mixed with water to form slurry. Now this slurry is allowed to enter in the dome. The biogas generated from these plants is then used for cooking. The plant is not working properly due to less maintenance.

Reuse:-Waste like old furniture, aluminum, plastic, cardboard, Tubes, Batteries, electrical wires, switches, scrap such as steel, aluminum etc. are stored at the civil store room and may be used for further need for projects or repairing.

The waste which cannot be recycled or reused is directly sent to Landfill. At present they do not have the proper source segregation system for the waste. They only use one waste bin at the door for each room.

Electronic waste: The electronic waste generated from the collage is repaired and used for demonstration for students or made available to students for the project work.

SUGGESTIONS:-

Solid waste management at college is not well managed. Source segregation of waste is also need to be done for proper management. Biogas and composting plant is also not working properly in the campus so maintenance activity needs to be done. Capacity of the composting plant and Biogas plant is very low so need to be increased.

The following are some suggestions regarding solid waste management.

1. The waste should be categorized into Bio-degradable and Non-biodegradable waste at source.
2. The grey water treatment plant should be properly maintained. Either capacity of plant or number of plants should be increased to achieve zero waste discharge.
3. For Demolition waste like old furniture, a spate yard should be made to reuse after some time.
4. There should be separate scrap disposal yard (Suggested place- area nearer to old boiler). The waste should not burned out. It should be segregated into bio-degradable and non-biodegradable waste before disposal.
5. If in-situ composting or vermicomposting of garden waste is not possible it is better to give this waste to Sugar factory composting plant as they can maintain it well.
6. The students should be encouraged to use the waste materials in their projects. Separate points should be given to those students according to percentage of waste reused in project to increase the waste use.

7. The old, equipment's or electronic devices which are not in use not sent to scrap, these should be used for demonstration to students. Some parts of these equipment's may become useful to students in their projects.
8. Old computers, books, tables which are not in use needs to be donated to some needful.

3. Water Audit:-

The purpose of this program is to identify cost effective water saving measures and encourage conservation among those users and assist them in implementing the savings measures recommended. In water audit the sources water, Water distribution system, water use and water disposal is carefully studied and the water wastage is encountered.

The water mainly used for the following purposes in the collage.

1. Drinking
2. Irrigation
3. Cleaning
4. Cooking
5. Construction
6. Laboratories.
7. Commercial service station.

Sources of water

The water available in the collage is come from the following sources.

1. Municipal Corporation.
2. MIDC.
3. Irrigation department.
4. Bore well.
5. Rainwater harvesting (1500 sq. Sm.)

The total water requirement of the collage is about 2.30 lakh lit/day which include 1.20 lakh lit/day in residential area and about 1.10 lakh lit/ day in college campus area.

Hence total water requirement per month = 6,900 m³/month.

❖ **MIDC water consumption meter reading per month in the campus.**

Sr. No.	Month	Place	
		College Campus	Hostel
1.	April 2016	-	-
2.	May 2016	511 m ³	-
3.	June 2016	814 m ³	5813 m ³
4.	July 2016	915 m ³	1467 m ³
5.	August 2016	-	1680 m ³
6.	September 2016	-	-
Avg. Per month		750 m ³	3000 m ³
Total water taken from MIDC per month = 3000+750=3750 m³			

❖ **Irrigation department average water consumption record per month in year 2015 and 2016.**

- Average Water consumption per month in 2015 = 1497 m³/month
- Average Water consumption per month in 2016 = **2479 m³/month**

❖ Water conservation through Rain water harvesting per year = 1000m³/Yr.

❖ Approximately Water available for use through rain water harvesting per month = **83.33 m³/month.**

❖ Water available from the waste water treatment plant = **135 m³/month**



Technology, Education, Research and Rehabilitation for the Environment
Leading platform for development through Alternate Path

- ❖ The water available from municipal corporation per month= Negligible (taken according to need).

Total water consumed per month in 2016 = 3750+2479+88.33+135= 6452.33 m³/month.

Water storage and distribution:-

The water from these sources is then stored in well, underground storage tank, elevated storage tanks located at various location in the campus. From these storage the water is then distributed to various departments through pumping.

The water from MIDC is distributed to Hostels, Guest house and the water from the Municipal Corporation is distributed in academic campus area. The water from irrigation department is stored in a well and it is used for irrigation purpose.

Waste Water management:

The total waste water generated in campus is approximately 50,000 lit/day. The whole water from academic campus is collected and is discharged to municipal drainage line at two different places. Waste water of south half portion of residential area is collected at a point and then released to municipal drainage line and north half side waste water is released to sugar factories agricultural land. All this water is flow through open drainage lines.

To reuse the waste grey water they have installed the grey water treatment plant of about 4.5 m³/day capacity. Waste grey water of hostel is stored in a tank and further goes for treatment. About 4,500 liters of water is treated in this treatment plant and remaining water goes to municipal drainage line. Treated water is then used for irrigation purpose.

Water conservative Activities:

Rain Water Harvesting:-

The college has about 1500 sq. m roof top area under rain harvesting. Total water collected from rain water harvesting is about 1000 m³/ yr. Rain Water Harvesting is mainly done above the class

room buildup area which is about 1000 sq. m. The water collected from roof is collected through pipelines and stored in a underground tank of about 80,000 lit. Capacity. Boy's hostel number 1 roof of area 500 sq. m also contribute in rain water harvesting. The water collected from this building is used to recharge the bore well.

To increase the ground water percolation rate, they made the different layers using bricks, sand and stones below every grass loan. Hence in rainy season the water percolates easily into ground and there is no problem of water clogging due to heavy rainfall. Water level controller is used to reduce overflow runoff.

SUGGESTIONS:-

1. The rain water is the best way of water conservation. Hence entire campus rooftop is used in rain water harvesting. The water harvested in Boys hostel is used only to recharge the bore well, but the excess water may be stored in the nearby well which will definitely reduce the water meter reading of irrigation department.
2. The waste water which is released in municipal drainage or in sugar industry or in agriculture land can be used to develop the wet land. The root zone technology may become the income source if managed properly.
3. There should be awareness slogan near the each tap regarding water conservation.
4. The special workshops should be arranged periodically for students and all faculty members regarding precise use of water.
5. We observed that all drainage lines in college are open to atmosphere, which is really unhygienic. These all drainage lines should be closed or covered.

4. Energy Audit:

An energy audit is an inspection, survey and analysis of energy flows, for energy conservation in a building, process or system to reduce the amount of energy input into the system without negatively affecting the output(s). In commercial and industrial real estate, an energy audit is the first step in identifying opportunities to reduce energy expense and carbon footprints.

Electrical department of the college always tries to reduce energy consumptions and electricity bill. RIT is H.T. consumer of MSEDCL having express feeder of 11 kV. They have sanctioned maximum demand of 350 KVA. There is a 360 KVA diesel generating set is available for backup. RIT gets incentives in MSEDCL bill of 5 % per month because of maintaining good P.F. from last 19 years.

Total Load in RIT

Sr. No.	Location	Connected load in KW
1.	Main Building	230.066
2.	Instructional building	76.923
3.	Mech. & Auto building	59.543
4.	CSE, ETC, MBA building	212.001
5.	Hostel Building	83.066
6.	Workshop building	146.224
	Total	808.417 KW

Diesel Consumption of generator backup of 140 Kva KIRLOSKAR made.

Sr. No	Year	Total Running hours of D.G.	Consumption in KW	Consumption in KWh (Units)	Diesel consumption in ltr.
1.	2012	74	42	3100	1850
2.	2013	150	21.33	3200	3750
3.	2014	151	34.10	5150	3775
4.	2015	110	29.09	3200	2750

Diesel Consumption of generator backup of 160 Kva KIRLOSKAR made.

Sr. No	Year	Total Running hours of D.G.	Consumption in KW	Consumption in KWh (Units)	Diesel consumption in ltr.
1.	2012	149	43.32	7350	3725
2.	2013	126	57.76	6900	3150
3.	2014	150	48.67	7300	3750
4.	2015	155	46.12	7150	3875

Load connected in different departments

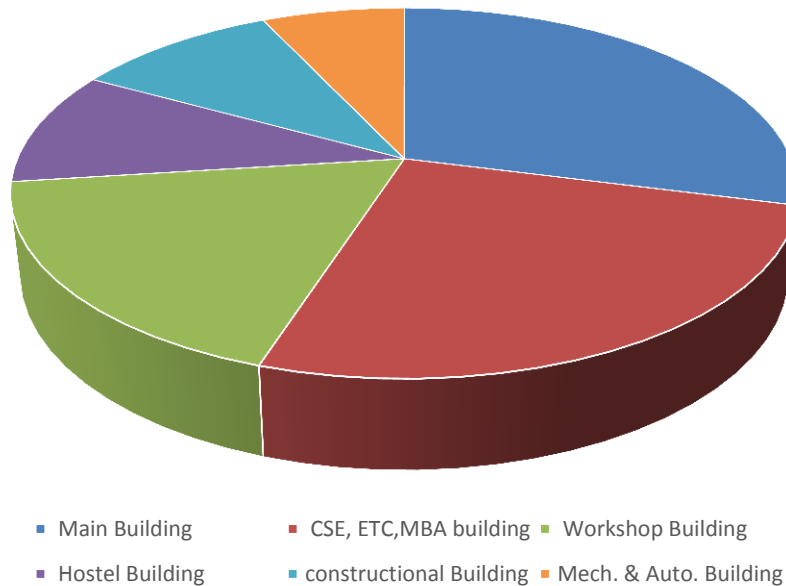


Chart shows the load distribution in different sectors.

Measures Taken to reduce energy consumption:

Replacement of old tubes Ballast (choke) by efficient electronic Ballast:

Electrical dept. has taken action to replace the old inefficient tube set choke by the new energy efficient electronic type tube set choke at some departments. It consumes less amount of power at same illumination electronic ballast consumes 40 w and regular ballast consumes 51 w power considering 24 hrs. running per months.

Name of dept.	No. of Tube set	Energy Consumption of New electronic Ballast Kwh/ month (A)	Energy consumption of Traditional (old) Ballast Kwh/ Month (B)	Energy Saved Kwh/ Month (A-B)
Civil Engg.	98	94.08	119.95	25.87
Central Computer centre	23	22.08	28.15	6.25
Sci. & Humanities	17	15.91	20.80	4.89
IT Dept.	11	10.29	13.46	3.17
CSE dept.	38	35.56	46.51	10.95
ETC dept.	23	21.52	28.15	6.63
Total	210	199.44	257.02	57.58

College campus street light:-

At college campus previously 250w Mercury vapor and street lights were used and running hour of street lights is 7 pm to 6 am i.e. 11 Hrs. per day.

Sr. No	Name of the Equipment	Rating of the Equipment (KW)	No. of Street light	Conn-ected load (KW)	Connected Load of 250 w mercury vapor or sodium street light(KW)	Saving of power in KW
	LED Street Light	50	2	0.100	0.5	0.4

	LED Street Light	80	1	0.080	0.25	0.17
	CFL Street Light Lamp	85	6	0.51	1.5	0.99
	CFL street light	65	6	0.39	1.5	1.461
	CFL street light	23	12	0.276	3.0	2.86
	LED Tube	22	2	0.044	0.5	0.456

Total Solar Street lights in the college campus: 13

Under maintenance solar street light: - 08

New Digital library Building

RIT implemented the energy saving policy in newly constructed library building having G+4 floors. Library starts at 8 am and closed at 9 pm every day.

Total working days are 6 and hrs. / Month i.e. 264 hrs. / Month. Considering 60% of total load

Name of the Luminaries	Rating of Luminaries (w)	No. of Luminaries	Connected Load (w)	Total running hours per month	Consumption of Energy per month (Kwh)
LED tube set	28x2	101	5656	158	893.64
LED Aslimline	45	57	2565	158	405
LED tube	42	45	189	158	772.58
LED Round Down Light	17	621	10557	158	1668

LED strip	14.5	13	188.5	158	29.78
LED Batten Tube	28	57	1596	158	252.16
LED cob Down Light	9	62	558	158	88.16
LED projector Light	17	24	408	158	88.16
LED Down Light	17	5	85	158	13.43
Sodium vapor Lamp	250	4	1000	180	180
CFL Bulk head	9	17	153	158	24.17
LED Flood Light	50	4	200	158	31.60
LED Wall Light	13	21	273	158	43.13
Pendant Mounted light	36	34	1224	158	193.39
LED Round Lighting 8	22	32	704	158	11.23
Bollard Light	18	8	144	158	22.75
LED wall Light	7	11	77	158	12.16
Total			1116	27975.5	

Total power consumption of LED luminaries in Library building = 27.975 kW

Total Energy consumption per month = 4805.58 kWh.

In the new construction library

Total no. of LED luminaries in the library building is **1116**

By traditional luminaries (40W regular tube set) connected load may be **1116x40w= 44.640 kW** and total units per months= **44.640 kW x 158 hrs. =7053.12 kwh/months.**

Power saved by using LED luminaries = 44.640 KW – 27.975 KW = 16.665 KW

Hostel Solar Water Heater System.

Sr. No.	Department	Student Capacity	Require Heat water/person/Lit.	Total water Required Liter	Total available capacity of solar water heater in liter.
1.	New Ladies Hostel	184	20	3680	4000
2.	A Hostel	150	20	3000	2000
3.	B Hostel	150	20	3000	2500
4.	C Hostel	150	20	3000	2000
5.	D Hostel	167	20	3340	2500
6.	E Hostel	135	20	2700	2000
7.	F Hostel	194	20	3880	2000
	Total	1130		22600	18000

No. of rooms available in hostel = 662 room.

One electrical geyser will required for a room. Therefore minimum 662 no. of geysers having 2kw capacity will be required.

Total power required= 662 geysers x 2 kW = 1324 kW/ day.

Energy awareness program conducted by Electrical department.

Sr. No.	Name of the program	Date	Conducted For
1.	One day workshop on Electrical Appliances, maintenance and safety for electrical.	09/01/2011	MSEDCL persons
2.	One day workshop on floor mill owners and operators	07/05/2013	Islampur city Floor mill owners and operators.
3.	Vidyut Suraksha saptah	12/01/2016	MSEDCL, PWD, students.

SUGGESTIONS:-

1. Instead of using the whole A.C. in the library if there is natural ventilation in the library that may save huge amount of energy. Replacing old Ac by new 5 stars rated inverter AC with refrigerant R290, H34 can be installed in the entire campus which is very energy efficient and also have less impact on climate.
2. All the lighting equipment is replaced by new LED light technology which helps in reducing electricity bill by 80%.
3. Old and non-operational equipment's should be used for either demonstration or for provided to students for their projects.

4. Solar Photo-voltaic Cell should be installed in the campus for using solar energy in to electrical energy which also reduces their electric bill.
5. Old fridge, fans, Television, Computer, etc. are replaced by new technology i.e. by 5 star rated given by BE.
6. There should be alternate light switches for the illumination during night hours in the campus.
7. The extra lectures or workshops should be arranged for students, teaching and non-teaching members regarding how they can save the energy without compromising the comfort.
8. The equipment's which are generally on standby mode should be switched off after use.
9. There should be notice board or indicator to identify the underground electricity line, substation, Switch boards regarding safety concern.
10. The energy conservative slogans should be there at each switch board.
11. To minimize the electricity bill the use of solar energy equipment's should be installed and maintained properly.
12. During new construction the green building concept should be taken into consideration.

Collage initiatives in environment related activities and sustainable development.

The collage take initiative to aware the people regarding environmental issues, renewable energy, and sustainable development. The collage have many social groups such as UNNAT, Nature club, NSS etc. which take part in such activities.

Some of the activities done by these groups are as follow.

Nature Club: - (Head: - Prof. Y.M. Patil)

1. Tree Plantation.
2. Sewage Treatment plant.

UNNAT: - (Head: - Prof. S.S. Kumbhar)



Technology, Education, Research and Rehabilitation for the Environment
Leading platform for development through Alternate Path

1. Drought mitigation action plan.
2. Eco-Bappa activity (Environment friendly idols.)
3. Hazarwadi village development plan.
4. Bhilawadi Village development Plan.
5. Bhilawadi Solid Waste Management Plan.
6. Third party consultancy in Sangli drainage system.
7. Chullha Project –MoRD, IIT Bombay.
8. Women Empowerment.

Directives and Guidelines For sustainable Campus

1. The separate Environment committee should be formed to conduct different environment related activities, to observe the environmental status of the campus.
2. This environment committee should have to form separate guidelines, by laws and rules regarding environmental issues.
3. This committee is supposed to be plan and work on zero garbage and energy efficient campus.
4. Formation of Nature / Green Club for students to promote & create awareness for Environmental conservation activity.
5. Organize workshops, trainings & awareness programs for students & staff.
6. Solid waste handling and disposal, 2000 rules should be followed for disposal of waste.
7. The waste should be controlled and segregated at source.
8. The waste paper from the collage should be collected in library. The library is supposed to do this paper available for students for Xerox and one side blank paper is also used by the college rough work or notes etc.
9. All canteens including cafeteria should have mini-biogas which will run on Kitchen waste.




Technology, Education, Research and Rehabilitation for the Environment
Leading platform for development through Alternate Path

10. At the topmost floor there is cafeteria if the terrace garden is made there, it will solve the problem of waste water & kitchen waste generated in cafeteria.
11. Green Cover should be increased, and mostly indigenous plant should be used for plantation. Artificial nest is hanged on trees to increase bird diversity in the campus.
12. Attempts should be made to minimize the use of fresh water for gardening by using treated gray water for the same.
13. There should be Area identification name plate in the campus.
14. Eco boards, posters Slogan regarding environmental awareness should be displayed in the campus.

Verified By:

Vinitaa M. Apte



Dr. Vinitaa Apte

President, TERRE Policy Centre