



**C.S.I, K.N.D, B.M.H.E.C's
C.S.I COLLEGE OF COMMERCE,
DHARWAD.**



**GREEN AUDIT REPORT
ENVIRONMENT AUDIT REPORT
ENERGY AUDIT REPORT**

7.1.6

1 Environment Audit


2. Energy Audit

3. Green Audit




2309 I-Cross Mahantesh Nagar, BELGAUM -16


e-mail : beecube81@gmail.com

:  99024 28248 Reg :5624 93

Our Audit Team has visited CSI, KND, BMHEC's **CSI College of Commerce DHARWAD** Dist: **DHARWAD, 580 021** on 22nd Sep 2022 and undertook the *ENVIRONMENT, ENERGY* and *GRREN* Audit works of college campus.



 prof. B. B. Barake
Global Eco Tech & solutions
BELGAUM


Principal
PRINCIPAL
C.S.I. COLLEGE OF COMMERCE
DHARWAD (KARNATAKA)



ENVIRONMENT AUDIT REPORT

This is to certify that, *our Audit Team* has visited CSI KND BMHEC's **CSI College of Commerce DHARWAD Dist: DHARWAD, 580 021** on 22nd Sep 2022 and undertook the *Environment Audit* work of college campus.

The college is located in HUBBALLI-DHARWAD city Corporation limits. The twin cities together make the second largest city in Karnataka by population. The twin cities are selected for **solar cities /green cities** in the year 2017 by **Govt of India**. Hubballi-Dharwad cities are emerged as educational hub in north Karnataka. Both cities are semi organized Industrial cities. Both cities seem to be free from industrial harmful gas effluents.

AIRVEDA Camera Techniques Beta Attenuation Method (BAM) has been employed to check the air quality parameters in terms of Air Quality Index (**AQI**) and audible intensity measured by standard sensors of sound, in decibel Bell (**dB**).

The details of Geographical, Environmental and Weather parameters Dharwad Dist: Dharwad are as follows.

GEOGRAPHICAL PARAMETERS

1. Altitude from sea level : 728m. (2388 ft)
2. Latitude : 15.456729 N.
3. Longitude: 75.008985 E.
4. Weather Chart of Dhawad (*Koppen Gieger Weather Chart.*) : Aw- BSh (sand witch zone)
5. Topo sheet : enclosed
6. Perennial water flow direction : East
7. Dharwad : It is a semi industrial city.

PHYSICAL PARAMETERS

8. Average Temperature : 25 to 28 Celsius.
9. UV Index : 5 to 8 normal
10. Average rainfall : 280 - 310 mm.
11. Rainy peak month : August
12. Average Humidity : 40 % to 55% as per AIR VEDA techniques
13. Least humid period : March to June
14. Clear Visibility : up to 6 to 10 km
15. Gust and wind velocity 8 to 10 km /h
16. Average pressure : 1008 mb
17. Snow fall : Nil



SUSTANABLE POLLUTION LEVELS

18. **AQI level : (72 Moderate)** (safe as MoEF per standards)
19. **RPM : 60 to 85 $\mu\text{g m}^{-3}$ moderate** (605 $\mu\text{g m}^{-3}$ as per MoEF standards).
20. **SPM: 44 to 50 $\mu\text{g m}^{-3}$ *** (100 $\mu\text{g m}^{-3}$ as per MoEF standards).
21. **NO_x level : 2.0 to 2.4 $\mu\text{g m}^{-3}$** (80 $\mu\text{g m}^{-3}$ as per MoEF standards).
22. **SO_x level : 0.50 to 1.50 $\mu\text{g m}^{-3}$** (50 $\mu\text{g m}^{-3}$ as per MoEF standards).
23. **O_3 level : 3.0 to 12 $\mu\text{g m}^{-3}$** (100 $\mu\text{g m}^{-3}$ as per MoEF standards).
24. **CO level: 8 to 9.7 $\mu\text{g m}^{-3}$** (25 $\mu\text{g m}^{-3}$ as per MoEF standards).
25. **dB level is around 40 to 55 better range .** (as per the BIS audible standards).
26. **The illumination level are all better** (as per BIS mark 3646 part I).
27. **The pollution levels are within the safe range** (as per MoEF standard).

* city limits

TYPE OF SOIL , PH, QUALITY OF WATER AND GREENARY

28. **Type of soil** :Red loamy mix with Black cotton soil with PH of soil : 7 to 8
29. **Direction of perennial flow of water** : East
30. **Drinking Water quality** : RO and UV backed .
31. **Greenery in the campus** : Appreciable

MISCELLANEOUS

32. **Max Hottest day** 2nd May 2022, 12.26 PM +5.30 GMT
33. **Max Humid day** 10th Aug 2022,12.35 PM + 5.30 GMT
34. **Distance from Equator** 1703.60 km
35. **Distance from Tropic Cancer** 897.83 km
36. **Electromagnetic Radiation** < 40 μT (safe as per the BIS standards).

All Environmental related charts and their importance are submitted to the college.

Technical staff



Convener

Environment Audit Team

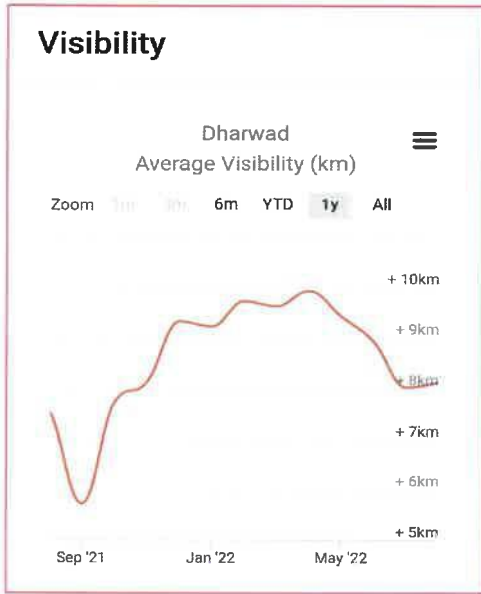
Place : Dharwad

Date :22nd Sep 2022

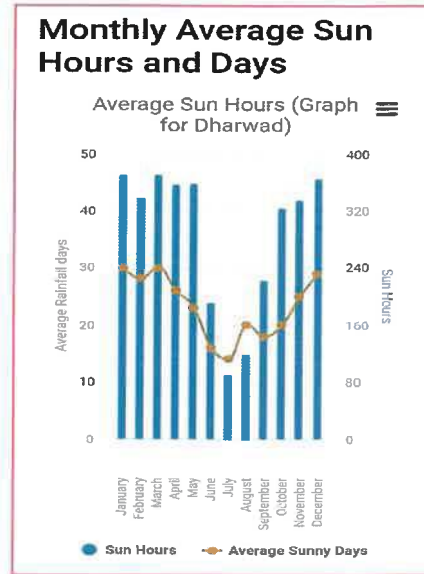


CSI,KND,BMHEC's
CSI college of Commerce, DHARWAD
Environment Audit

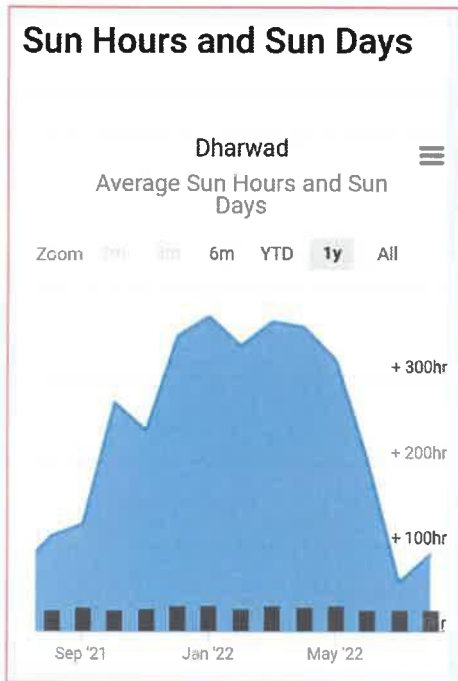
1



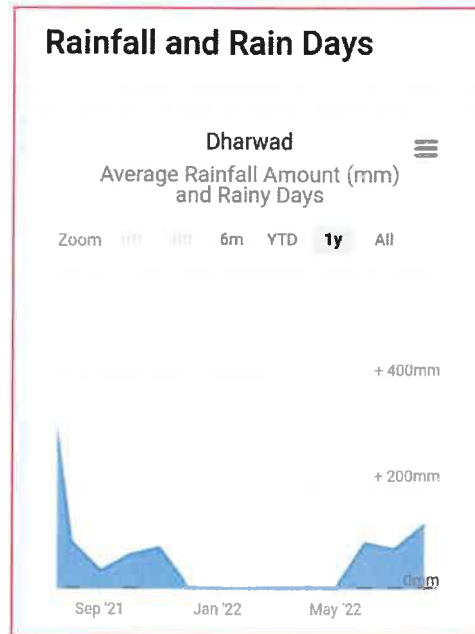
2



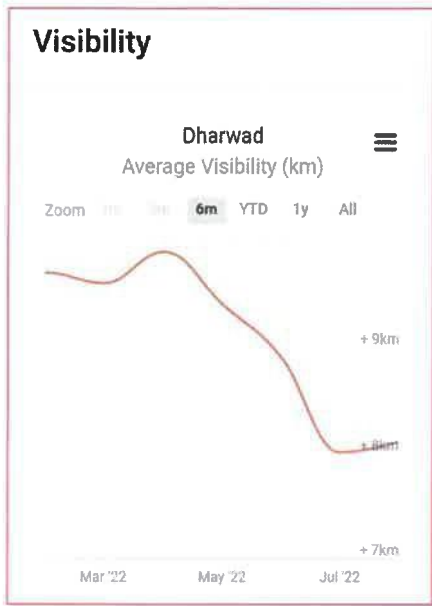
3



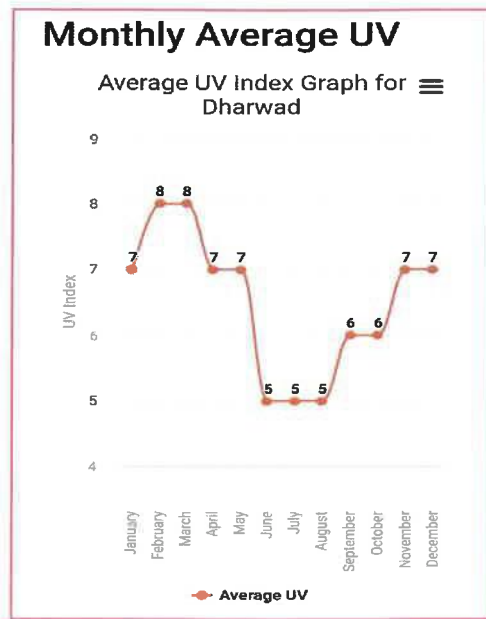
4



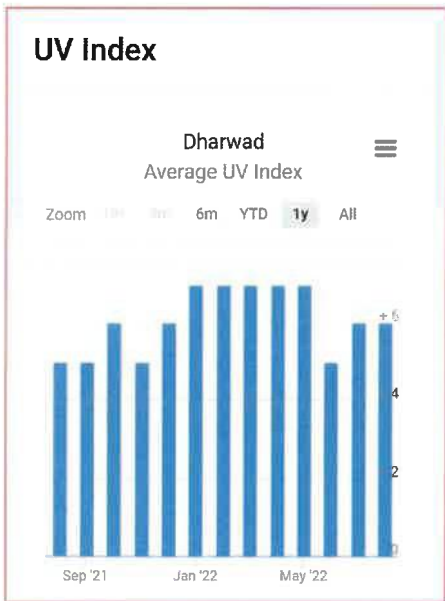
5



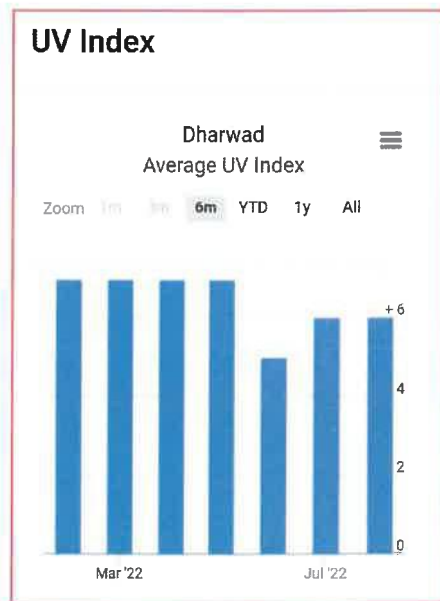
6



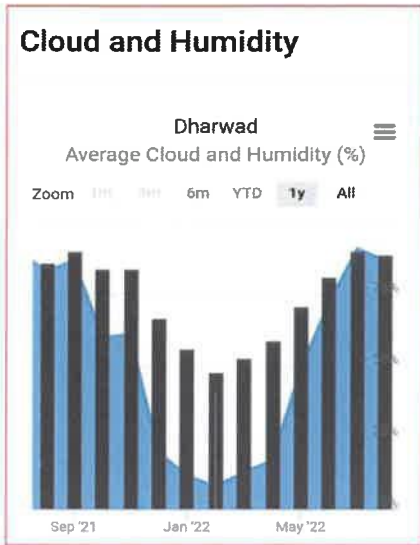
7



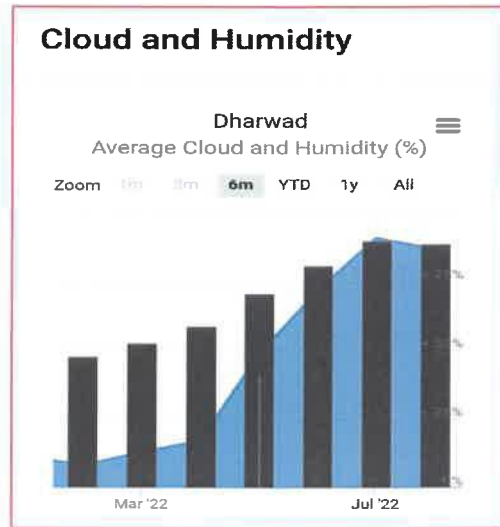
8



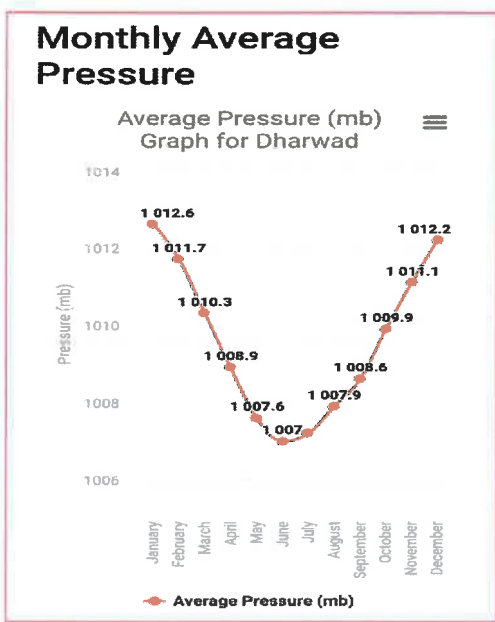
9



10



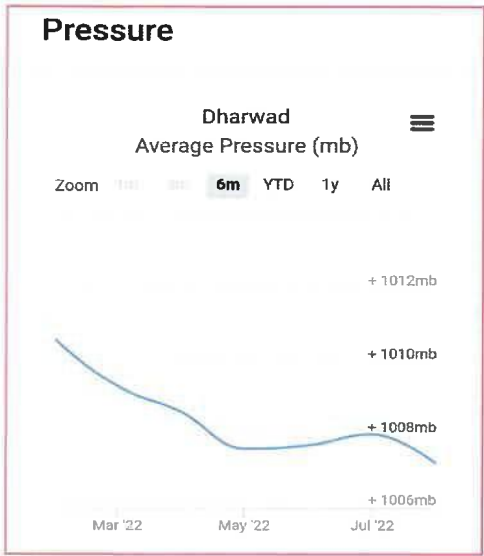
11



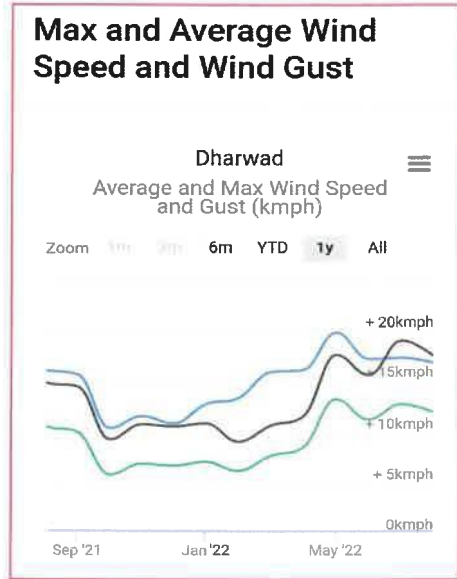
12



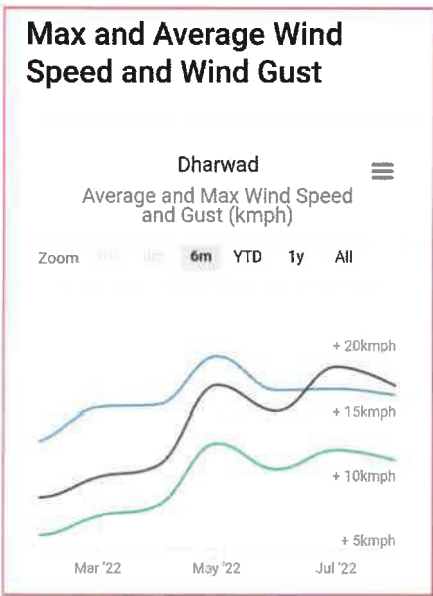
13



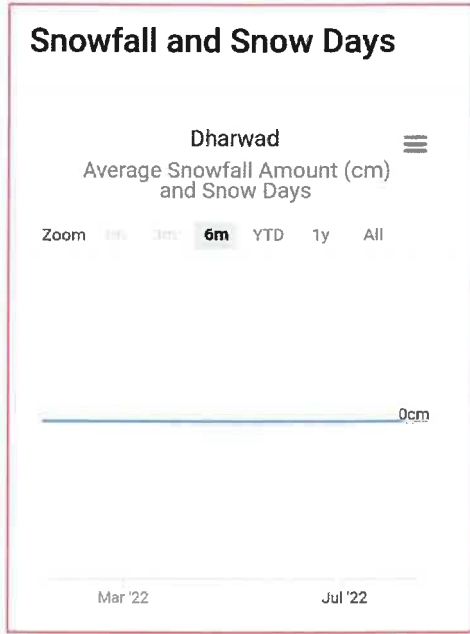
14



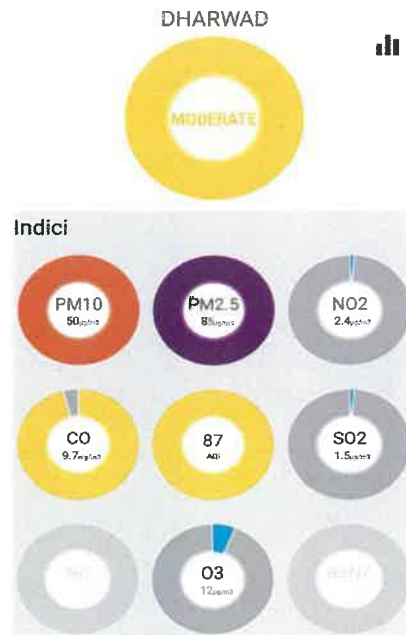
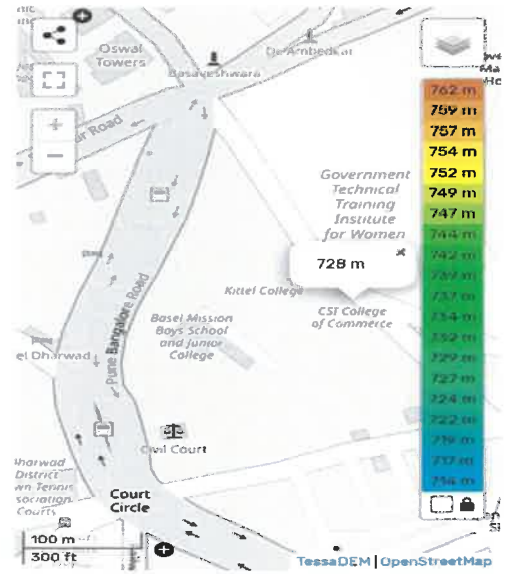
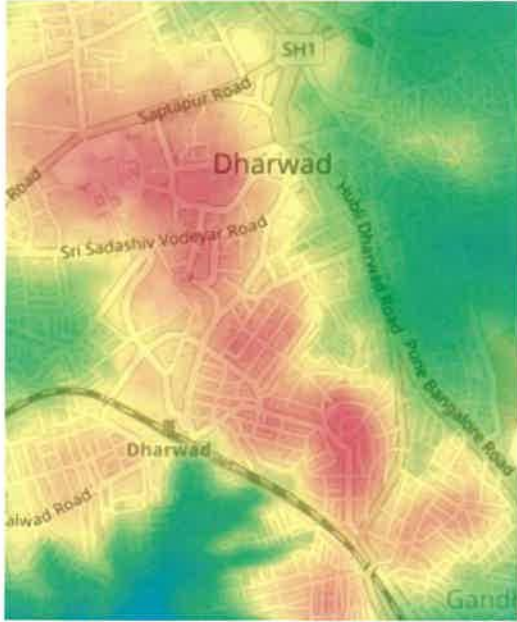
15



16




Topo Sheet of Dharwad AQI Index & Pollution parameters





2309 I-Cross Mahantesh Nagar, BELGAUM -16

e-mail : beecube81@gmail.com

:  99024 28248 Reg :5624 93

ENERGY AUDIT

This is to certify that, *our Energy Audit Team* has visited CSI KND BMHEC's **CSI College of Commerce DHARWAD Dist: DHARWAD, 580 021** on 22nd Sep 2022 and undertook the Environment Audit work of college campus.

The college is located in HUBBALLI-DHARWAD city Corporation limits. The twin cities together make the second largest city in Karnataka by population. The twin cities are selected for **solar cities /green cities** in the year 2017 by **Govt of India**. Hubballi-Dharwad cities are emerging as an educational hub in north Karnataka. Both cities are semi organized Industrial cities. Both cities seem to be free from industrial harmful gas effluents.

The Energy Audit is a retrospective survey and analysis of energy requirements. The energy conservation principles have been adopted with minimal use of energy judiciously .i.e

**“Whenever necessary
and
Where ever necessary use electric power ”.**

All the energy requirements are collected from each and every class room, laboratory, office, staff common room, library, computer lab etc.,

A separate log sheet of energy consuming appliances is made ready for ease of energy management. An energy **sensitization awareness program** is developed among the staff and students.

Need of Energy Audit

- To minimize the cost of energy consumption
- To minimize the operational costs
- To minimize the cost of maintenance

ENERGY AUDIT METHODOLOGY

The Audit involves visiting physical position of load and to carry out the inventory of load. Due measurements of electrical load of requirement and adequate circuit is carried out . Energy bill received from **HESCOM** is audited and analyzed ,various positions of energy. Present requirements are judged and finalized. Energy conservation and saving opportunities are identified, proper circuitry plans are implemented.





HESCOM CONSUMER BILL for the last **five years** have been analyzed Analysis follows on separate sheet. The energy sensitization programs are notified among the staff and it is found that there is decline trend in use of electrical power(very judiciously) without affecting the routine work of college activities. There are seven power connection nodes provided with separate meters. Graphical analysis of use of power meter wise, and total bill wise (consolidated) has been worked out .

The analytical data is as follows

S.No	Year	Average Power units consumed	Remarks
1	2017	1898	Achievement A graphical analysis shows that there is initial incremental trend in the beginning because of two last year because of infra structure developments . Later it is found that there is “ decline trend ” in the - 8.12 % as compared to utilization in 2019
2	2018	1881	
3	2019	1990**	
4	2020	1453	
5	2021	1833	
	Average*	1812	
		** Max	
<p>*Note : optimum utilization max consumption of electric power in the year 2018, 2019 is because of infra structure developments. Later there is a conservation of electric energy (Adopting modern electric appliances)</p>			

It is observed that roof top solar energy harvesting units are installed in campus. Because of this facility the college is getting electric bills as per HESCOM norms.

** Decline trend indicate practicing “use of electric power is done judiciously”. This is reflected from the **EXCEL graphical analysis** sheets.

Technical staff



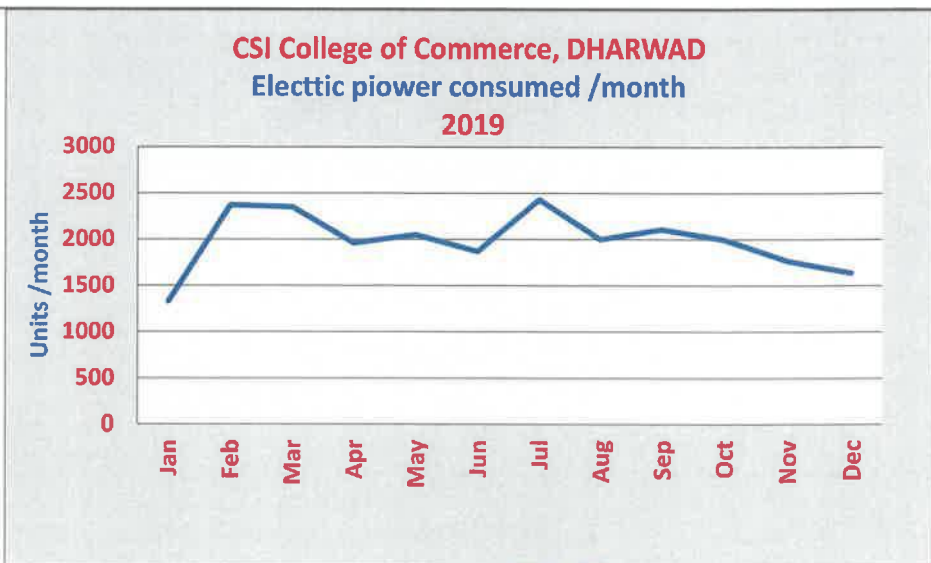
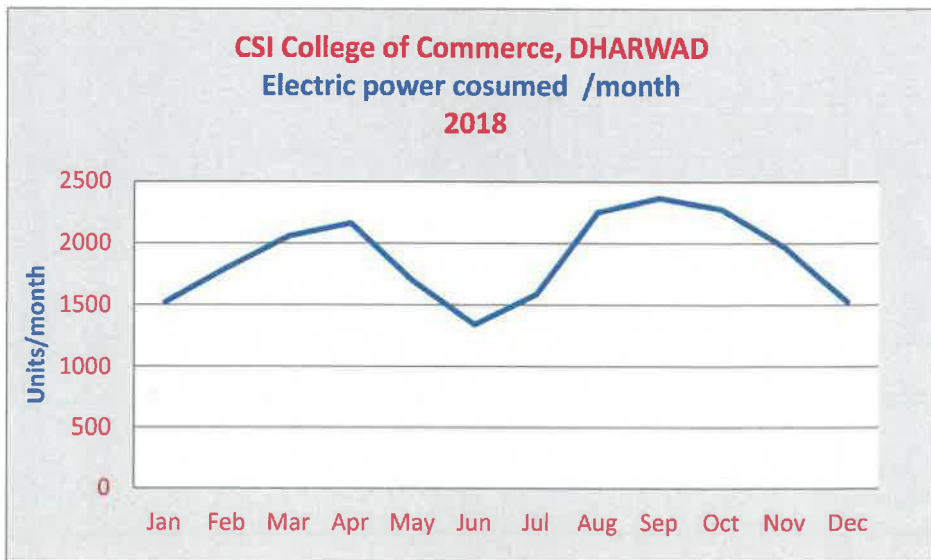
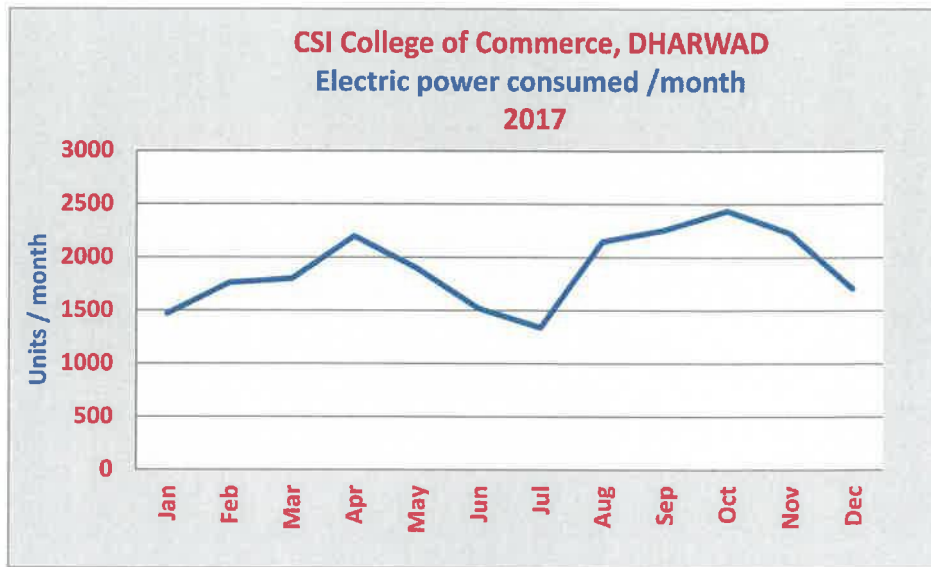
Convener
Energy Audit Team

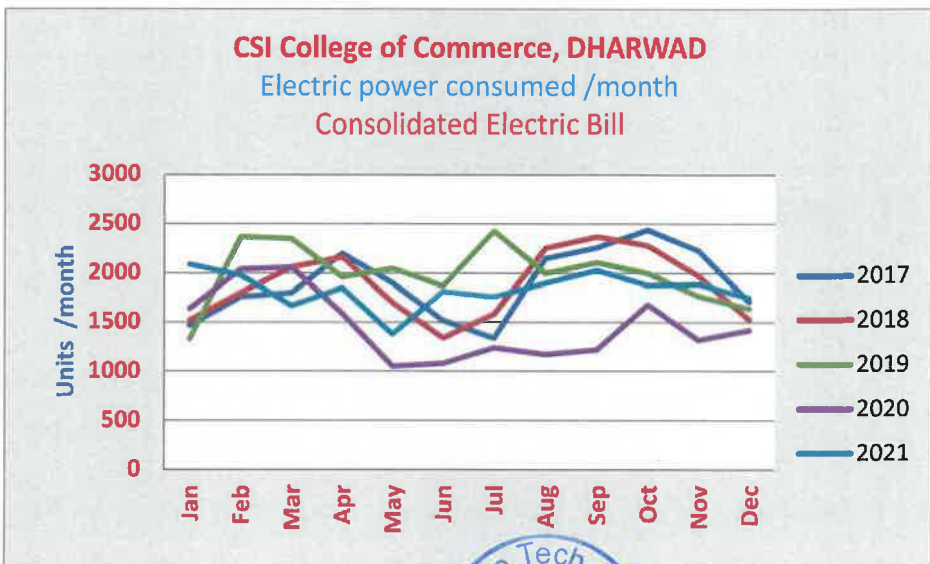
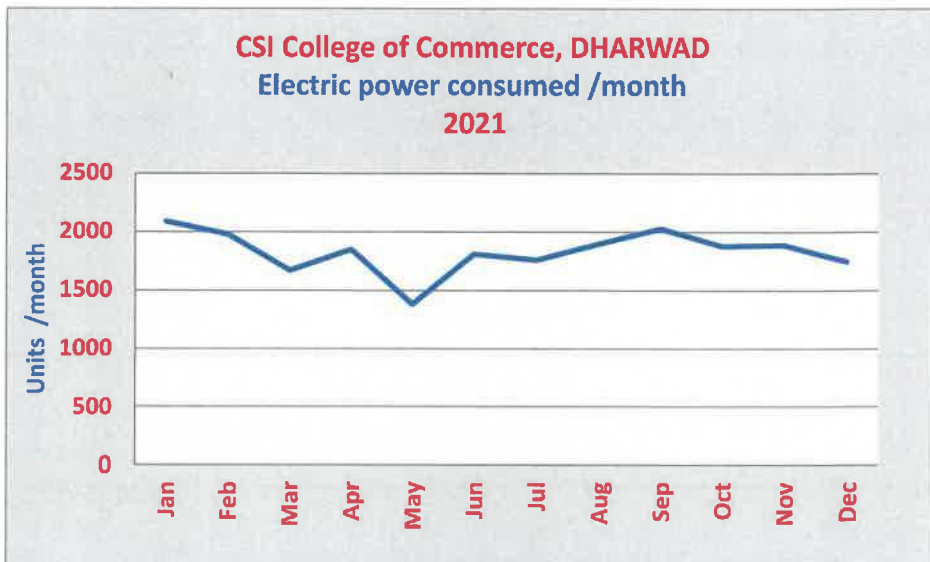
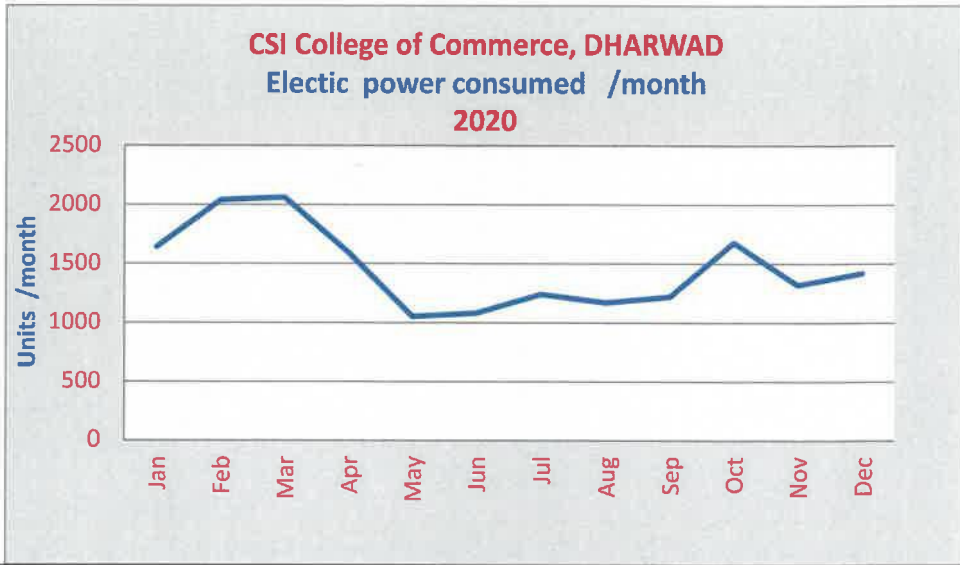
Place : Dharwad

Date : 22nd Sep 2022

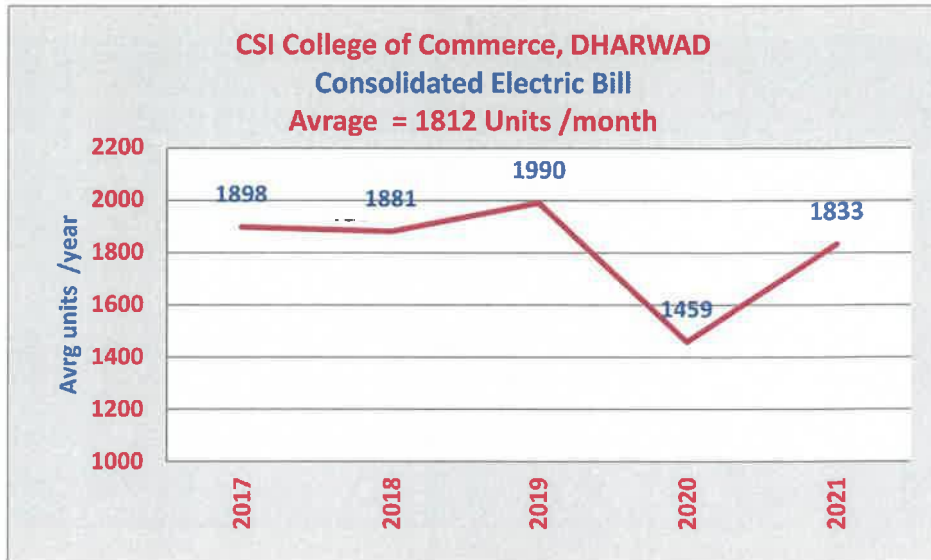


ENERGY AUDIT





Analysis of Energy Audit



Note : The college is utilizing energy of an average of 1812 Units / month
Energy utilization figures lay in the either side of mean range.
There is optimum utilization of energy in the year 2019, because of infra structure
Developments. In year 2021 there is a decline in the energy utilization about 8.12
% w.r.t the maximum utilization.
It clearly indication the **judicious use of electric power**. Saving in power is
achieved by adopting smart technology



Electrical Appliances

Sl. No	Name of the Appliance	No. of Units
1.	Tube light	165
2.	Compact Fluorescent Lamps (CFL)	101
3.	Ceiling Fans	64
4.	Pedestal Fans	03
5.	Wall- mount fans	08
6.	Refrigerator	01
7.	Computers	93
8.	Pumping Machines	02
9.	UPS and other Back-up Devices	05
10.	Generators	01
11.	CCTV's	43
12.	Projectors	13
13.	Electric Kettles	02
14.	Water PurifierUnit	01
15.	Electronic Lecterns	09
16.	Treadmill	01
17.	Laptops	06
18.	T.V	06
18.	Bar Code Printer machine	01
19.	ID Card Printer	01
20.	Smart board	01
	Total Amount of KWH consumed per month	



59	Jun-21	LT2B	30	11613	11282	3310	Normal	20406	5185	27295.67	0	0	837.33	32480.67	53724	01-Jun-21	-20406	33318
60	Jul-21	LT2B	30	11654	11613	410	Normal	33318	0	3235	67	0	290.76	6054.6	39730	01-Jul-21	-33318	6412
61	Aug-21	LT2B	30	11792	11654	1380	Normal	6412	0	11480	0	0	1033.2	13872.8	21318	01-Aug-21	-6412	14906
62	Sep-21	LT2B	30	11973	11792	1810	Normal	14906	0	15135	0	0	1362.4	17338.6	33607	01-Sep-21	-14906	18701
63	Sep-21	LT2B	30	11973	11792	1810	Normal	14906	0	15135	0	0	1362.4	17338.6	33607	01-Sep-21	-14906	18701
64	Oct-21	LT2B	30	12149	11973	1760	Normal	18701	0	14710	0	18701	1324.2	17586.8	56313	01-Oct-21	-37402	18911
65	Nov-21	LT2B	30	12339	12149	1900	Normal	18911	0	15900	0	0	2707	18767	40385	01-Nov-21	-18911	21474
66	Dec-21	LT2B	30	12542	12339	2030	Normal	21474	0	17005	0	0	1530.1	19862.9	42867	01-Dec-21	-42867	0
67	Jan-22	LT2B	30	12730	12542	1880	Door Lock	0	0	15730	0	0	1416	18730	20146	01-Jan-22	0	20146
68	Jan-22	LT2B	30	12731	12542	1890	Door Lock	20146	0	15815	0	-20146	1423	18815	20238	01-Jan-22	0	20238
69	Feb-22	LT2B	30	12906	12731	1750	Normal	20238	0	14625	0	0	1316	17625	39179	01-Feb-22	-20238	18941
70	Mar-22	LT2B	30	13049	12906	1430	Normal	18941	0	11905	0	0	1071	14905	34917	01-Mar-22	-18941	15976
71	Apr-22	LT2B	30	13207	13049	1580	Normal	15976	0	13180	0	0	1186	16180	33342	01-Apr-22	-15976	17366
72	May-22	LT2B	30	13398	13207	1910	Normal	17366	0	16077.08	0	0	1446.9	19677.08	38490	01-May-22	-17366	21124
73	Jun-22	LT2B	30	13555	13397.96	1570	Normal	21124	0	13176.92	0	0	-339.92	16776.92	37561	01-Jun-22	-37567	-6
74	Jul-22	LT2B	30	13768	13555	2130	Normal	-6	0	17961.5	0	0	1616.4	22136.6	23747	01-Jul-22	-23747	0
75	Aug-22	LT2B	30	13986	13768	2180	Normal	0	0	18389	0	0	1655.4	22577.6	24233	01-Aug-22	-24233	0
76	Sep-22	LT2B	30	14180	13986	1940	Normal	0	0	16337	0	0	1470.2	20460.8	21931	01-Sep-22	-21931	0

SD

Assistant Executive Engineer
Dharwad City Sub-Division-2
HESCOM

K. K. Kulkarni
PRINCIPAL
C.S.I. COLLEGE OF COMMERCE
DHARWAD (KARNATAKA)

Sulabha
Assistant Accounts Officer
Dharwad City Sub-Division-2
HESCOM

A.S.
30/9/22



2309 I-Cross Mahantesh Nagar, BELGAUM -16

e-mail : beecube81@gmail.com

:  99024 28248 Reg :5624 93

GREEN AUDIT

This is to certify that, *our Audit Team* has visited CSI KIND BMHEC's **CSI College of Commerce DHARWAD Dist: DHARWAD, 580 021** on 22nd Sep 2022 and undertook the "GREEN AUDIT " work of college campus.

The college is located in HUBBALLI-DHARWAD city Corporation limits. The twin cities together make the second largest city in Karnataka by population. The twin cities are selected for **solar cities /green cities** in the year 2017 by **Govt of India**. Hubballi-Dharwad cities are emerged as an educational hub in north Karnataka. Both cities are semi organized Industrial cities. Both cities seem to be free from industrial harmful gas effluents.

Most of the significant plants in the campus are indentified and nomenclatured.

The list is enclosed,

"*My college My plant*" an innovative program to nourish the plants has been popularized. Staff and students have taken some plants to nourish at their own cost.

The campus is lush green and most suitable Academic developments.

Technical staff

A handwritten signature in blue ink, appearing to be 'O. S.', written over a horizontal line.

Convener

GREEN Audit Team

Place : Dharwad

Date: 22nd Sep 2022



Sl.No.	Name of the Plants and trees (Scientific and Common names)	Total
1	Flame of the Forest, Pine	4
2	Saraka Ashoka/Ashoka Tree	6
3	HyophorbeLagenicaulis/ Bottle Palm	5
4	Cocus nucifera / Coconut Palm	35
5	Pots	44
6	Passion Fruit	1
7	ChlorophytumComosum / Spider Plants	22
8	Dracaena trifasciata/Snake Plant	20
9	Asparagus Staceus/Asparagus fern	1
10	Catharanthus roseus/Vinkarosea	1
12	FicusTriangaulasis/ Triangle leaf fig	3
13	Allium cepa/Onion	1
14	Portulacagrandiflora/ moss rose	1
15	sphagneticolaTrilobata/ Singapore Daisy	1
16	Murrayakoenigli/ Curry leaf plant	2
17	Hibiscus	1
18	Acalyphawilkesiana/Fire dragon or Copper leaf	3
19	Jasminum officinale/Jasmine	2
20	Aegopodiumpodagraria /Ground Elders	3
21	Codiaeunvariegatum/ Garden croton	1
22	Lophantheralactescens/ Golden charm tree	2
23	Aucuba Japonica/ Spotted laurel	3
24	Tabernaemontanadivaricate/ pinwheel flower	2
25	CidiaeumVariegatum/ Croton	2
26	FicusBenjamine/ Rubber plant	1
27	Justica gendarussa/ DaunRusa	1
28	Laporteaestuans/ West Indian wood nettle	1
29	Daphnelatureola/ Spurge laurel	1
30	Juniperusvirginiana/ juniper	1
31	Hibiscus Rosasinensis/ Chinese hibiscus	1
32	Coffea Arabica/ Arabica coffee	1
33	Terminalia catappa/ IndianAlmond	1
34	OnalisIncarnata/Wood sorrel	many
35	Tabebuia heterophylla/ pink trumpet	1
36	Grevillea Robusta/ Silver oak	1

[Handwritten signature]



CARBON FOOT-PRINT AND HAND PRINT OF THE INSTITUTE
(ISO 14064)

"A carbon foot print of the Institute is the total sum of Green House Gases (GHG) emissions caused by the organization event or product".



Input data

- ❖ Electric energy consumed KWh/monthly-avrg last three years = 1812 Units/month
- ❖ No of petrol cars used staff = 00
- ❖ No of diesel cars used staff = 2
- ❖ No of Omni buses run by college = Nil
- ❖ No of two wheelers brought by students = 50
- ❖ LPG consumed in(kg)/month (staff room) = 1/2 cylinder / month
- ❖ LPG consumed in(kg)/month (canteen) = Nil

Consumption rates

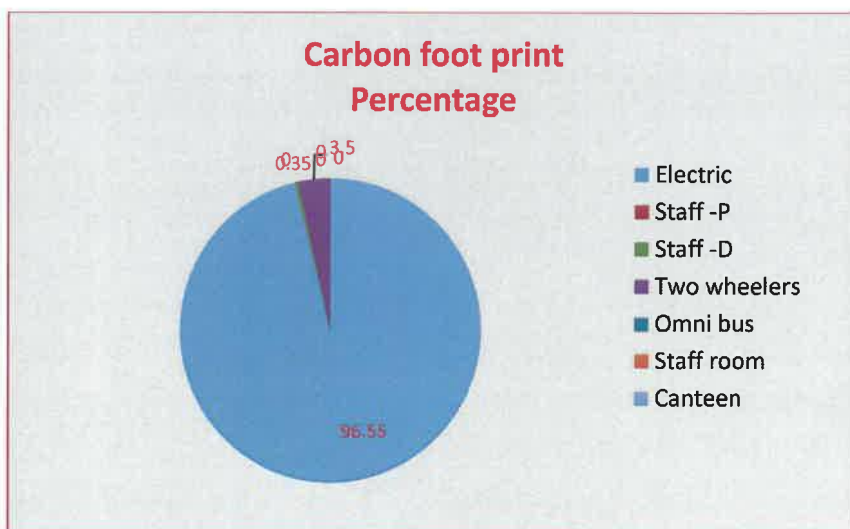
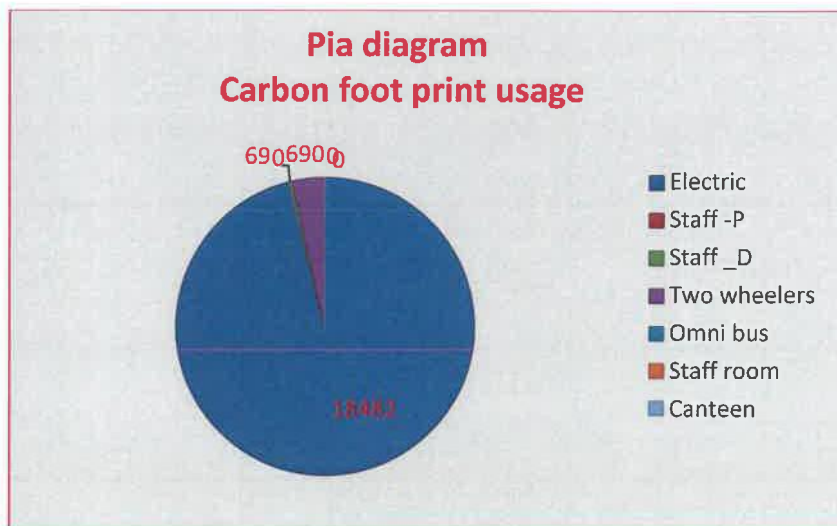
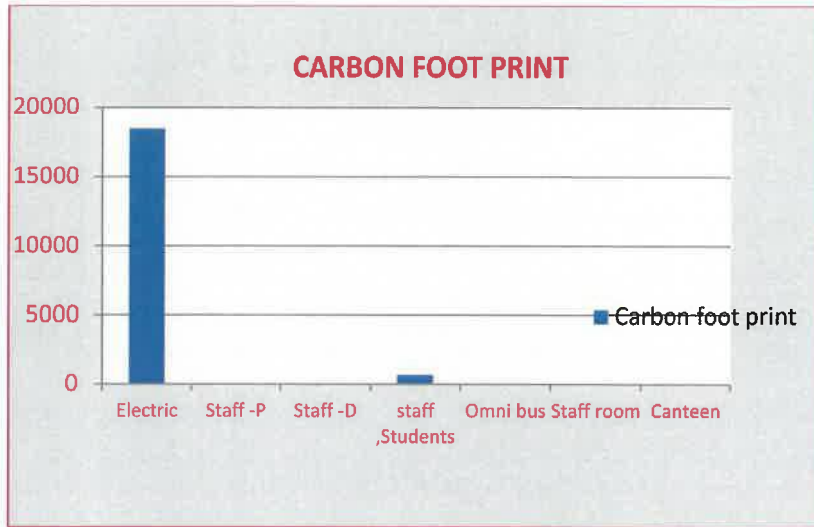
- ❖ Electric energy consumed (Avrg) KWh)/ monthly last three years = 1812 x12 Units/month
- ❖ Average petrol consumed petrol car(Liter)/month =12 lit /month
- ❖ Average diesel consumed diesel I car(Liter)/month =12 lit /month
- ❖ Average petrol consumed by students-two wheelers (Liter)/month =247 x2 lit /month
- ❖ Average diesel consumed diesel by Omni buss =).00x (5 Liter)/day =0.00 /month
- ❖ LPG consumed in(kg)/month (staff room) = 0.00 kg /month
- ❖ LPG consumed in(kg)/month (canteen) = 0.00 cylinder/month = Nil kg /month

Carbon foot print by the way of in Kg of CO₂ equivalents

1. Electricity = $1812 \times 12 \times 0.85 = 18482.00$
2. Petrol (staff) = $0 \times 12 \times 12 \times 2.296 = 0.00$
3. Diesel (staff) = $2 \times 12 \times 12 \times 2.653 = 69.00$
4. Two wheeler Petrol (staff and students) = $50 \times 2 \times 12 \times 210/365 \times 2.296 = 690.00$
5. Diesel by Omni buses = $0.00 \times 100 \times 12 \times 2.653 \times 210/365 = 0.00$
6. LPG (staff room) = $0.00 \times 12 \times 2.983 = 0.00$
7. LPG (Canteen) = $0.00 \times 12 \times 2.983 = 0.00$
8. **Net Carbon foot print in ton of CO₂ = 19241 Kg /year**
= 19.24 ton/year



CSI, KND, BMHE Centre's
C.S.I College of Commerce , DHARWAD



(Handwritten signature)



CARBON FOOT-PRINT AND HAND PRINT OF THE INSTITUTE
(ISO 14064)

"A carbon Hand print of the Institute is the total sum of positive impact produced on the environment by reducing the carbon foot print".



To **reduce** this "Carbon foot print", "Carbon hand print" following techniques practiced

- i) popularizing use of solar energy roof top solar harvesting
- ii) creating awareness regarding energy sensitization programs
- iii) promoting electrical vehicles
- iv) purchasing BS VI certified vehicles
- v) creating awareness annual PUC test of vehicle (Pollution Under Control tests)
- vi) Installing stand alone solar units in the campus

A handwritten signature in blue ink, appearing to be 'S. J.', with a horizontal line underneath.



