ENERGY AUDIT REPORT

FOR

BVV Sangha's, Commerce College, Bagalkot.

BASED ON BEST ENERGY PRACTICES.

CONSERVATION OVER EFFICIENCY: EDUCATE, PRACTICE, ADVOCATE & MANAGE.

EXECUTIVE SUMMURY.

Sr No	Obse-rvation*	Problems*	Resulting losses*	Remedial measures*	Capital*	Projected savings*	Category 7
1	Battery placement	Battery shell in conductor loop	Low perfomance & self-discharge.	Design the stacking arrangements.	In house resourses	25% of the cost of the batteries.	7.1.2 7.1.6
2	Battery regeneration.	Short life span	300% of the cost of the battery.	Subject all batteries to regeneration made.	Rs.20.00 Lacs or as per user agreement	300 %	7.1.2 7.1.6
3	Electrical	Old tube lights	High energy consumers	LED lights of appropriate ratings.	Rs.80/- to Rs.250/- per unit	Rs.175/- per tube per annum. ROI of 1 years.	7.1.6
4	Natural Lighting	Un cleaned windows and ventilators, forced switching on of tube lights	High energy bills	Clean the windowpanes and allow maximum natural light penetration.	Nil, part of routine, In house manpower.	Substantial cost of energy bills on lighting.	7.1.2 7.1.6

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6	Placement of projector	Information not visible/high brightness	No objectives are delivered	Re align.	Nil,	Good deliverables.	
	* For details please follow the discussions in the report.						

ENERGY AUDIT COMPLETION CERTIFICATE

I, Mallikarjun A. Kambalyal endorse and confirm that this report is generated based on the site visits and evidence collected from the site.

All attempts have been made to evaluate the scope for development and inculcate green practices in the campus and extended through out the campus. The focus is also laid to make positive impact on the society for a better living.

I also confirm and sign this certificate, In case the institution needs demonstration, my team of professionals shall be happy to do so.

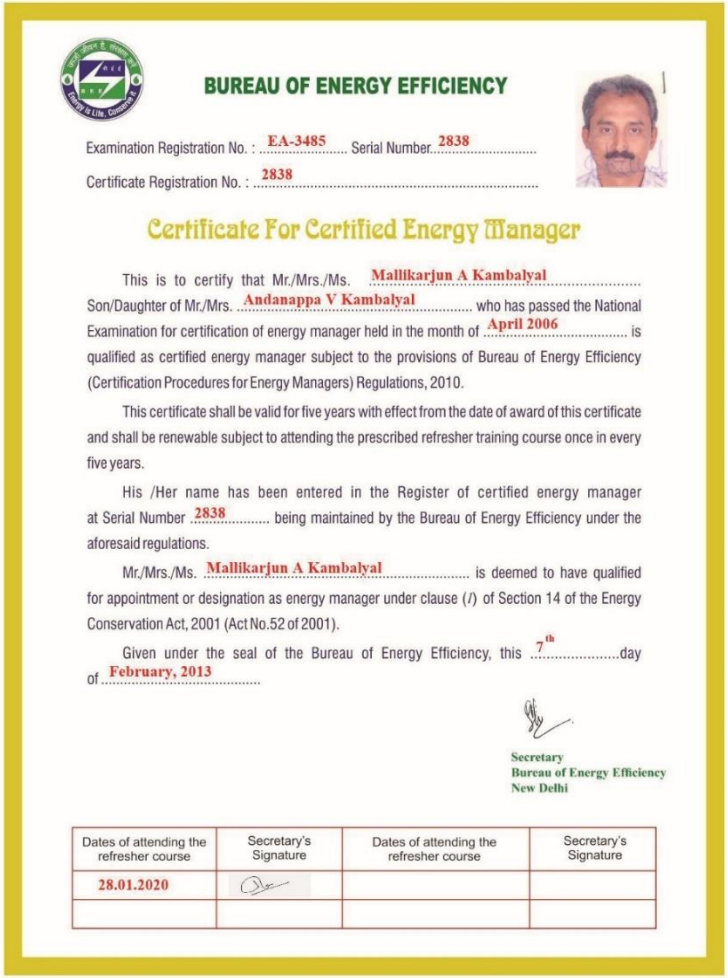
We present this report to fulfill the citizens moral responsibilities much more than the legal or mandatory compliances. This report is tabled in two parts. The first forms the core discussions which are general in nature. The second section is subject specific under the statutory requirements of the NAAC accreditation norms. They are Audit reports on, Green aspects, Energy aspects, Environment aspects, Health aspects and the discussions on net CARBON FOOTPRINT & the CARBON HANDPRINT initiatives.

shall be common for all the three se

Any modifications, changes, omissions after the site visit shall be exclusive.

Certified Auditor.
Mallikarjun A. Kambalyal B.E (E&C)
Certified Energy Auditors EA-3485& ISO 50001:2011 & ISO14001:2015 Lead Auditor.

Credentials attached
7.1.6



BUREAU OF ENERGY EFFICIENCY

Examination Registration No. : EA-3485 Serial Number 2838

Certificate Registration No. : 2838

Certificate For Certified Energy Manager

This is to certify that Mr./Mrs./Ms. Mallikarjun A Kambalyal Son/Daughter of Mr./Mrs. Andanappa V Kambalyal who has passed the National Examination for certification of energy manager held in the month of April 2006 is qualified as certified energy manager subject to the provisions of Bureau of Energy Efficiency (Certification Procedures for Energy Managers) Regulations, 2010.

This certificate shall be valid for five years with effect from the date of award of this certificate and shall be renewable subject to attending the prescribed refresher training course once in every five years.

His /Her name has been entered in the Register of certified energy manager at Serial Number 2838 being maintained by the Bureau of Energy Efficiency under the aforesaid regulations.

Mr./Mrs./Ms. Mallikarjun A Kambalyal is deemed to have qualified for appointment or designation as energy manager under clause (*l*) of Section 14 of the Energy Conservation Act, 2001 (Act No.52 of 2001).

Given under the seal of the Bureau of Energy Efficiency, this 7th day of February, 2013

Secretary
Bureau of Energy Efficiency
New Delhi

Dates of attending the refresher course	Secretary's Signature	Dates of attending the refresher course	Secretary's Signature
28.01.2020			

Certificate of Successful Completion

Intertek

This is to Certify that

MALLIKARJUN A KAMBALYAL

has successfully completed the

Intertek

CQI & IRCA Certified ISO 14001:2015
Auditor Conversion Training Course

The Course includes the assessment and evaluation of Environmental Management Systems to conform to the requirements of ISO 14001:2015 and ISO 19011:2011

This course is certified by the Chartered Quality Institute (CQI) and the International Register of Certificated Auditors (IRCA)
– IRCA REFERENCE 18093 –

The course meets the training requirements for individuals seeking certification under the IRCA Auditor Certification Schemes

CQI | IRCA
APPROVED TRAINING PARTNER

Authorising Signature:

Course Dates: 14th – 16th July 2017 *Certificate Number: 47730*

Membership Application To Be Made Within 3 Years From Last Day of Course

121807

Bureau of energy Efficiency Egd No: EA3485 **ISO Certified Lead Auditor. Certificate No: 47730**

bsi.

By Royal Charter

BSI Training Academy

This is to certify that

Mallikarjun A. Kambalyal

has attended and passed

Energy Management Systems (ENMS) Auditor/Lead Auditor Training Course
(ISO 50001:2011)

Premanand Ramakrishnan, Director of Training

Date: 14/04/2016 - 18/04/2016
Certificate Number: ENR-00253448

This certificate is valid for 3 years from the date above for the purpose of registering as an auditor with IRCA.

Course number A17583 certified by IRCA

...making excellence a habit.™

The British Standards Institution is incorporated by Royal Charter
BSI India, The Mira Corporate Suites (A-2), Plot 1 & 2 Ishwar Nagar Mathura Road, New Delhi 110065, India Tel: +91 11 2692 9000

ISO Certified Lead Auditor. Certificate No: ENR-00253448

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Audit objectives.

Environment Audit was initiated in the beginning of 1970's, with the motive of inspecting the work executed within an organization, whose exercises could cause risk to the health of inhabitants and the environment. It exposes the genuineness of the proclamation made by the organisation with the concern on health issues. As a consequence of their operations with respect to environmental pollution it is the duty of the organisation to carry out the Environment audit of the ongoing processes for various reasons, such as,

- To make sure whether one is performing in accordance with the relevant rules and regulations,
- To improve the procedures and aptness of material in use,
- To analyse the potential duties and to determine a way which can lower the cost and to the revenue.

Through Environment audit one gets adoration as, how to improve the condition of the environment. There are various factors that were forced upon and determine the growth of/or conduct of Environment audit. Incidents like,

- Decades old Bhopal gas tragedy, that has left its residual effect which still haunts us.
- Our buildings catching fire due to various reasons,
- Industries blowing off taking valuable human lives etc
- People going sick, feeling tired, after long hours of operations in the organization,
- Increased demand of generators due to inconsistent power supply, which has resulted or lead into recent floods and droughts,

are some of the situations to ponder about.

Know

- Why?
- Where?,
- What?,
- When?,
- How?,

about this Audit and the objectives .....

To address various issues in context with human health, Environment audit is assigned to "Criteria 7" of NAAC (National assessment and accreditation council) accreditation. NAAC is a self-governing organization in India that declares the institutions as Grade "A", Grade "B", or Grade "C", according to the scores assigned at the time of accreditation.

The other intention of organising Environment audit is to update the environment conditions in and around the institutions ie., within the compound and outside the compound. It is carried out with the aid of performing certain tasks like waste management, energy consumed, diesel burnt it performing the objective of the organization. Lastly to self-assess the net carbon footprint of the conduct of process in the organization.

The goals of Environment audit

- The purpose of carrying out Environment audit is securing the environment and cut down the threat posed to human health.
- To Make sure that rules and regulations are complied with.
- To avoid the environmental interruptions that are more difficult to handle and their corrections call for high cost.
- To suggest the best protocol for adding to sustainable development.
- To execute the process of the organisation utilising minimum natural resources and efficient use of those resources contributing to minimum waste generation.

How is is the Environment audit conducted

Pre-audit

- Planning
- selecting the team of auditors both internal and external
- schedule the audit facility
- acquire the background information
- visit areas under audit

On site conditions:

- Understand the scope of audit
- Analyse the strengths and weaknesses of the internal controls
- Conduct audit with end user comfort focused and making it easy to perform.
- Collect necessary evidence so that the stakeholders stand to understand how and where they are going wrong in the process of their conduct.
- Post audit draw the report based on the data collected.
- On confirmation of the preliminary report, draw a final report of the observations and inference with accuracy more near to implementable way.
- Discuss various remedial measures for alternatives if required.
- Prepare an action plan to overcome the shortcomings with continual observation on the action plan initiated.

Steps under Environment audit

Water audit: Water is one of the cheapest commodity next to the Air we breathe. Although we Indians, use less water in comparison to western countries. However, the

extent of pollutants that we leave behind has polluted all the resources including the deep well.

Rainwater harvesting is one of the best techniques that can be adopted by harvesting the rainwater and using it at the time of scarcity. The audit team to observe and investigate the relevant methods that can be adopted and implemented and draw the balance of, use of water.

Waste management audit: The point of generation of waste, the type of waste generated, i.e, hazardous, recyclable and organically compostable wastes and segregating method at the point of generation for easy and best way to handle the same. Evaluating such methods to minimise the use of resources in the process of their management.

Energy audit: It deals with use of energy in the conduct of the process. The priority is topmost for conservation over efficiency; hence, energy auditor should always consider not to use the energy if necessary. At best it can be used judiciously.

Environmental quality audit: It analyses air quality, noise level and the programs undertaken by the institution for plantation creating awareness of trees around us and how nature provides us with remedial measures within its framework.

Health audit: In the process of use of resourses and conduct of the activities, they can develop impact on human health, that might be off minutely harmful, cause permanent disorder or may even cause death. Occupational health hazards are discussed in detail and the stakeholders are informed of the same and required necessary remedial measures indicated.

Renewable energy: To make the organisation net zero carbon emission, use of renewable resources including energy such as solar, wind, biogas, geothermal energies are put into utilisation.

.Carbon handprint: The net impact of all the above audits should be to make an organisation contribute zero emissions, which are caused by use of water, generation of waste, use of energy environmental damage, health damage and finally to explore if the campus can go in contributing to third-party emissions/minimising

Benefits of green audit: To draw home the benefits, the system has been separated into various audits as listed above. In doing so, and if audit findings are effectively implemented, there are many advantages, that can be practiced in the process

- Recognise the cost saving methods through waste minimising and managing technologies.
- Point out the prevailing and forth coming complications.
- Authenticate conformity with the legal requirements.
- Empower the organisation to frame a better environmental performance.
- Portray a good image of the institution which helps to build better relationships with the group of organisations, stakeholders in and around its operations
- Enhance the alertness for environmental guidelines duties and conduct of preparedness for any eventualities due to environmental disasters.

Vision Statement of the institute

The Basaveshwar Commerce College is one of the prestigious institute of Basaveshwar Veerashaiva Vidyavardhaka Sangha, Bagalkot which was founded by His Holiness Shri Gurubasava Mahaswamiji of Bilur in the year 1906, with the opening of a Sanskrit Patashala.

It provided the impetus that propelled a sleepy little town into an Educational, Commercial and Industrial hub of this backward area of Karnataka state.

Our Vision

Imparting Excellent Education and Training in Commerce and Business Administration, thereby earning a unique Distinction as Top-notch Commerce Institution in North Karnataka

Our Mission

Basaveshwar Commerce College was established in 1970 with a great mission of imparting professional education in commerce, Business Administration & Management at U.G & P.G. Levels.

The Broad Goal of the college is to respond to the ever-changing needs & expectation of Business Environment and Demands of the community by molding students into accountable citizens, developing a sense of Dedication, Social Conscience and Commitment.

Objectives

To bring out graduates of excellence, complete character and integrity to venture into right vocations, professions and entrepreneurship.

To harness the students potential through coordinated efforts and personal attention.

Core Values

Critical thinking and problem solving.
Leadership.
Encouraging and building student ability, character and creativity.
Ethics: We believe in acting with honesty, courage, and trustworthiness.
We value an institutional attitude and culture that promotes and supports total health and wellness of staff and students.
Excellence: Maintain a high standard of integrity and performance leading to the achievement of academic and professional goals.

Core Values of the Institution.

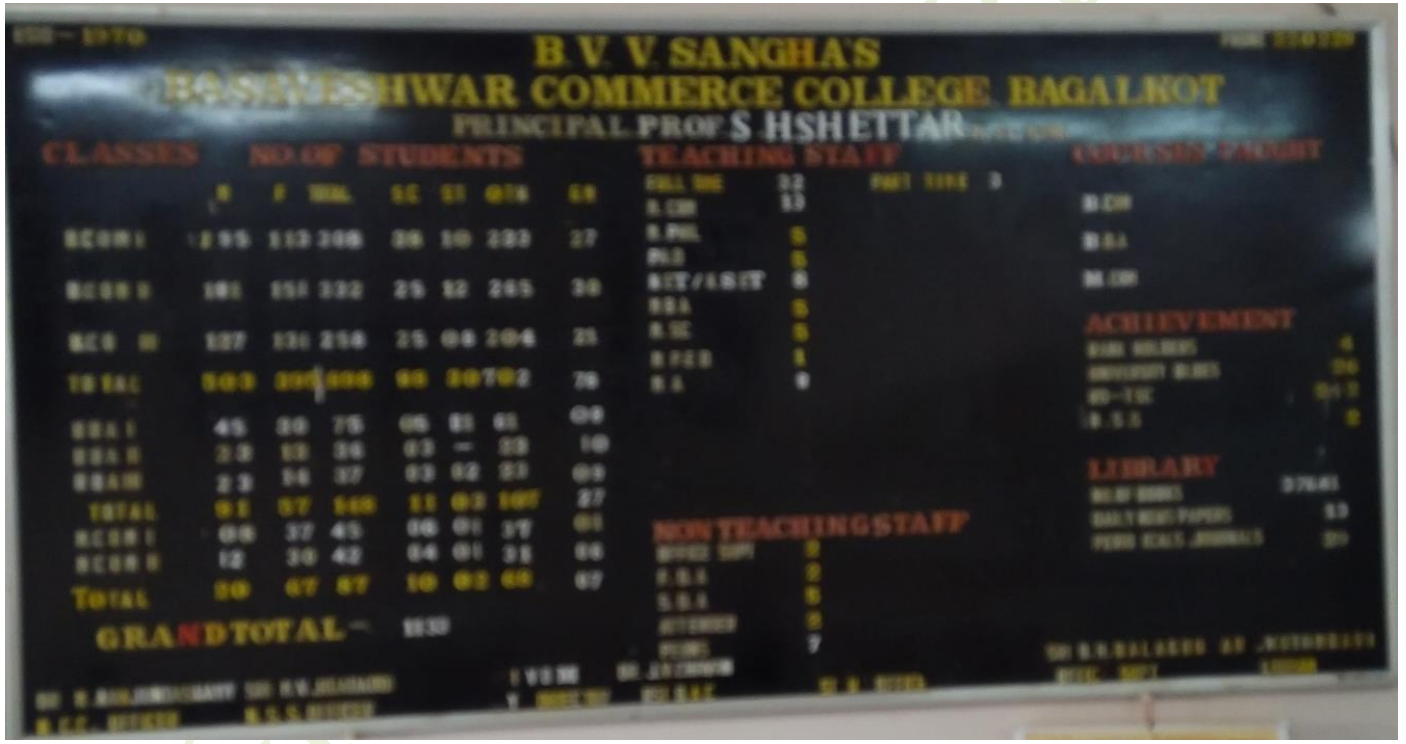
	We, The Principal, staff and students, adopt responsible practices in our days energy use with due regard to the environment. We pledge to avoid using electrical power where not needed. We also pledge to use judiciously the electrical power by using Energy efficient products. We shall practice to switch off all appliances when not in use. **PURPOSE:** To realistically and comprehensively reduce energy consumption, assure acceptable indoor air quality, and improve energy efficiency on campus through methods that are consistent with a safe, secure, and inviting campus community. As outlined in this policy, energy conservation will be accomplished by developing a proactive and progressive approach to providing energy efficient, responsible, and cost effective operations on campus. This policy will be reviewed and updated periodically as public awareness, management techniques, and technologies change. **APPLIES TO:** Faculty, staff, students, and visitors. **CAMPUS:** BVV Sangha's Basaveshwar Commerce College, Bagalkot. We pledge to speak in open forums for the energy conservation first, Energy Efficiency next and eliminating of High Energy use appliances for better or low energy use one's. We commit ourselves to the safe operation of all our needs, be it in classrooms, library, canteen, on road, off road, in-campus out-campus as well as at our place of stay. We adhere to reduce environmental load by efficiently using resources, saving energy, reducing waste, encouraging material recycle, with special emphasize to minimising emissions of greenhouse gases, ozone depleting substance and particle matter. we endure to minimise environmental loads and adopt environmentally friendly technologies when ordering and purchasing necessary products and resources. We endure to attend educational programs and promulgate our close friends and colleagues to follow suite. We endure to ensure that we recognize the essence of this Energy use policy by actively and aggressively conducting workshops and training to all in environmental concepts. We make wide ranging social contribution to close association with the students, teaching staff, administrative staff, housekeeping staff by disclosing Energy use (Star rating appliances) information and supporting minimized consumption of Energy. Principal	**DAY's ENERGY USE PLEDGE (proposed)** *(indicative templet for display at all prominent areas, classrooms, waiting rooms, canteen, library, relaxing areas in the campus.)*

BASAVESHWAR COMMERCE COLLEGE

The Basaveshwar Commerce College is part of B.V.V.Sangha, which was established in 1970 with 50 students. The college has become predominant in the field of commerce and management education within a span of five decades. Basaveshwar Commerce College is the only independent commerce college in Bagalkot district. At present, nearly 1800 students are studying at the College. The college is offering various courses such as B.Com, B.B.A, M.Com and CA foundation coarse. The college has committed and dedicated faculty by large, it is committed for academic excellence and all-round development of the students. The Alumni of college are serving at their various capacities around the world. Some of them are leading chartered accountants, judicial officers, people's representatives, government officers, and entrepreneurs. In total Basaveshwar Commerce College is one of the outstanding colleges in Karnataka.

Overview of the institution.

College Outlay Board



All the discussions in the report evolve around the social existence of the citizens, the economic contribution factors, The industrial establishment and opportunities for entrepreneurship.

Bagalkot, is a city in the state of Karnataka, India, which is also the headquarters of Bagalkot district. It is situated on branch of River Ghataprabha about 481 km (299 mi) northwest of state capital Bangalore, 410 km (255 mi) southwest of Hyderabad, and about 570 km (354 mi) southeast of Mumbai. The population of the urban agglomeration was 111,933 according to the provisional results of 2011 national census of India, and the city is spread over an area of 49.06 square kilometres (18.94 sq mi)[2] with an average elevation of 532 m (1,745 ft) above MSL.

Education.

Bagalkot has a number of educational institutions, including Basaveshwara Vidya Vardhaka Sangha and Sakri Sangha. A number of colleges are affiliated with Rani Channamma University, Belgaum, Visvesvaraya Technological University, Rajiv Gandhi University of Health Commerces, Ramanagara. Basaveshvara Engineering College (BEC) was established in 1963. S Nijalingappa Medical College, HSK (Hanagal Shree Kumareshwar) Hospital and Research Centre, Bagalkote is affiliated with Rajiv Gandhi University of Health Commerces.

The University of Horticultural Commerces (UHS) is headquartered in Navanagar, Bagalkote with its constituent colleges spread across the state.

Economy.

Agriculture is the largest employer in Bagalkot, with over 65% of the working population engaged in it; approximately 80% of female workers in Bagalkot are engaged in agriculture. Like most of north Karnataka, Bagalkot is very rich in black soil which is conducive to the cultivation of cotton. Bagalkot's economy was valued at US$5.6 billion, making it the 12th largest economy in Karnataka. The approximate per capital income is US$360. The chief crops cultivated are rabi and jowar, as well as groundnut, cotton, maize, bajra, wheat, sugarcane and tobacco. Jowar is largely cultivated because it can be grown during rainy seasons as well as during the winters. The crop also is the chief supply of food for the people. Pulses are also grown in the region, primarily *tuvar daal*, gram, kulith and *mūng daal*. Castor oil, linseed and sesamum are also

FACTOR CONSIDERATION.

Sourse :

https://en.wikipedia.org/wiki/Bagalkot_district

Keeping civilized and self-sustainable growth contribution, all discussions in the report are based on the factors driving the civilization of the city and the nearby areas and their work culture.

grown in Bagalkot. Water supply for irrigation includes reservoirs such as the Kendur reservoir, which is six miles from Badami and the Muchkundi reservoir, which is 4 miles from Bagalkot. Famine due to lack of adequate rains is quite common in Bagalkot. A famine that struck the region in 1901 inflicted considerable financial loss to the agricultural industry in Bagalkot. The district has the fifth highest farmer suicide rate in Karnataka.[18] Efficient water management techniques and government sops have only marginally mitigated the repercussions of the drought stricken district.

A sizable proportion of the population also consists of weavers. The chief manufactures are cotton and silk cloths. Large quantities of cotton yarn are also dyed and exported to other parts of the state and country. Most of the immigrants in the district are either money lenders or cloth merchants.

Industries.

The focus sectors include agriculture, cement, sugar-based industries, silk and handloom industries.

It is one of the two handloom units (other is Dharwad) in India from where woven khadi is obtained and transported to Karnataka Khadi Gramodyoga Samyukta Sangha based in Hubli (which is the only licensed flag production and supply unit in India).

Many new industries are planning to begin in Bagalkot. New cement industries have been registered and are waiting for the permission to begin. There are other small-scale industries like Cement Pipe Industry which produce cement pipes, Bangle Industries which produce bangles, Match Stick Industries, Agarbatti Industries, Plastic Bag Industries etc. in Bagalkot. At the outskirts of Bagalkot city there are many small-scale industries set up. These come under the Vidyagiri area of Bagalkot city, which is the latest extension of the city. Small-scale industries like Ceramic Tile Industry, tyre industry, Stone Cutting And polishing Industry, milk Dairy etc. are running successfully. At Gaddanakeri there are many limestone industries and brick industries. The limestone industries produce lime for whitewash and painting. The brick industries produce bricks required for the construction of houses. There are local oil industries and oil refineries which produce oil from groundnuts, sunflower, sesamum orientale, cotton etc.

Bagalkot

City	Coordinates: 16.1817°N 75.6958°ECoordinates: 16.1817°N 75.6958°E

Bagalkot

Location in Karnataka, India

Country	India
State	Karnataka
Region	Bayaluseeme
District	Bagalkot
Government Type	City Municipal Council (CMC)
Body	Bagalkot CMC & BTDA
Total Area	49.06 km² (18.94 sq mi)
Elevation	537.06 m (1,762.01 ft)
Total Population (2011)	112,090
Density	2,183/km² (5,650/sq mi)
Demonym(s)	Bagalkotiens
Official Languages	Kannada
Time zone	UTC+5:30 (IST)
PIN	587101-105
Telephone code	08354
Vehicle registration	KA-29, KA-48
Website	bagalkot.nic.in

BAGALKOT WEATHER BY MONTH // WEATHER AVERAGES

	January	February	March	April	May	June	July	August	September	October	November	December
Avg. Temperature (°C)	23.5	25.4	28	29.4	29.3	26.4	24.9	24.9	25.2	25.4	23.9	22.7
Min. Temperature (°C)	16.8	18.3	20.8	22.7	23	22	21.5	21.3	21	20.6	18.4	16.5
Max. Temperature (°C)	30.2	32.5	35.2	36.2	35.7	30.9	28.3	28.5	29.4	30.3	29.5	29
Precipitation / Rainfall (mm)	0	3	5	30	66	80	113	87	145	124	24	6

Data: 1982 - 2012
The difference in precipitation between the driest month and the wettest month is 145 mm | 6 inch. The variation in temperatures throughout the year is 6.7 °C | 44.1 °F.

Source : https://en.climate-data.org/asia/india/karnataka/bagalkot-51062/

Average annual rainfall recorded is around 683mm.

EXECUTIVE SUMMURY.

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ACKNOWLEDGEMENT:

SUNSHUBH RENEWABLES & RESEARCH CENTRE is pleased to express its sincere gratitude to the management of BVV Sangha's Basaveshwar Commerce College, Bagalkot, for entrusting SUNSHUBH RENEWABLES & RESEARCH CENTRE with the assignment on Green Earth practices based on Educate, Practice, Advocate & Manage the resources in their educational organization with the work order No:BCCB no.56/2020 dated 09/06/2020.

We acknowledge the assignment allocation sent by Email on 19th Oct 2019.

We also wish to thank Prof. Smt. S. H. Shettar, Principal, Environment Audit Co-Ordinator, Prof. M M Huddar, Head of criteria 7th, Dr. J. V. Chavan, IQAC cordinator, and Prof. V. V. Nandaragi, IQAC Secretary, who have been constantly following with the green aspects and developments in the college. It was on their instance that we got to evaluate the initiatives undertaken.
The officials and the maintenance staff for the help rendered during the energy flow study.
We would fail if we neglect to appreciate the sincere efforts put in by the Faculty and the Students who against all odds have kept the college premises clean to the possible limits.

Without the crucial and significant support from the fellow teaching team the potential Environment saving options and carbon footprint reduction would not be a reality.
With the motivational support of the management, ground realistic support from teaching team and sincere efforts of the students in incorporating the change (habits) and instructions, the college could effectively declare the reduction in Carbon footprint and optimize the waste reductions.

We are not in a position to compute the carbon footprint at this point of time as the basic information from each of the students is yet to be collected; however, **we will discuss the Carbon Foot print in the follow up compliance report.**

Wishing the team a great success, we deeply express our gratitude and heartfelt "THANKYOU" for allowing us to assess the energy flow scenario there by the ENERGY STATUS.

Mallikarjun A. Kambalyal. B.E.(E&C).
Certified Energy Auditors (EA-3485)
SUNSHUBH RENEWABLES & RESEARCH CENTRE

	LIMITATIONS: Our recommendations are in the interest of conservation of Electrical Energy and Green Culture i.e. the reduction in CARBON FOOTPRINT. The compliance to the recommendations will be subjected to meeting the safety and Environmental rules and guidelines. **AUTHENTICATION & DATE OF ENERGY AUDIT:** This Energy Audit has been carried out on 12th June 2020 under the instructions of Smt. S H Shettar, Principal, in the presence of Prof. M M Huddar, IQAC, Dr. J N Chavan, NAAC, and Mr. V V Nandaragi, IQAC Secretary.

LIST OF INSTRUMENTS:

During the process of the Audit, the following lists of instruments were (considered for) use (wherever applicable).

Sr No.	INSTRUMENT	MAKE	APPLICATION
1	Digital Power Analyser(PC Interfaced)	SCHIVAN ARNOX	Electrical Machinery.
2	Accessories -3000 Amps	ARNOX	Higher load UPTO 3000 Amps,
3	Accessories -200 Amps	ARNOX	UPTO 200 Amps,
4	Thermal Imager	FLIR	Identify loose contacts and bearing losses
5	Power Analyser (Manual)	MECO	Electrical Machinery.
6	Infrared Thermometer	METRAVI	Thermal (Fuel) Energy.
7	Digital (Contact) Temperature & Humidity Meter.	METRAVI	Electrical Machinery. (A/C's And Cooling Towers)
8	Digital Tachometer	METRAVI	Electrical Machinery.(A/C's And Cooling Towers)
9	Lux Meter	METRAVI	General & Task Lighting.
10	Sound Level Meter	METRAVI	Electrical Machinery. Generator Sound Proofing

Sr No.	INSTRUMENT	MAKE	APPLICATION
11	Digital Anemometer	METRAVI	Electrical Machinery.(A/C's And Cooling Towers)
12	Digital KW Meter	METRAVI	Electrical Machinery.
13	Digital Power Factor Meter	METRAVI	Electrical Machinery.
14	Lap Top Computer	HP	To Interface The Instruments For More Accurate - Sophisticated Readings In Sensitive Equipments.
15	Ultrasonic flow meter		Measure liquid flow.
16	Portable Vibration Meter.	METRAVI	Structural Stability
17	Live cable detector probe	-	Detect hidden cables for safety audit.
18	Power Analyser – EMM 5	Beluk	For remote communication and detailed audit.
19	Power Analyser – ELITE PRO	Beluk	Power Analyser.
20	PT's for Transformer audits.	KALPA	On field auditing of transformer loading and imbalance evaluation.

Only appropriate instruments were used wherever necessary.

ABOUT ENERGY AUDIT:

BVV Sangha's, Basaveshwar Commerce College, Bagalkot has asked SUNSHUBH RENEWABLES & RESEARCH CENTRE, Hubli., to conduct the Energy Audit for their Institution.

In this context, the management of the Institute represented by Smt. S H Shettar, Principal, entrusted us the task of conducting the feasibility study to reduce energy consumption and adopt green habits.

SUNSHUBH RENEWABLES & RESEARCH CENTRE represented by Mr. Mallikarjun A. Kambalyal made a detailed study and readings of various appliances were taken and carried out the Energy audit along with the safety parameters.

We hope the points presented will be self-explanatory, if there is need for any clarification, we are open for discussions.

ONGOING STATUS:

It's an optimistic & highly dedicated team effort lead by the Principal & the senior staff who have dedicated all their wits & free time to initiate Green Carpet the entire college premises. It is also a fact that there do exist, few short comings which however is unintentional & on being trained & educated the campus should look for continued minimized waste generation. With all due appreciation to the management, staff involved &cooperation by the students, we have made few suggestions which on implementation, will reduce, demand for water & electrical power. It will also reduce the existing level of pollution to bear minimum.

There is high potential among the students to be educated and spread the knowledge of going ZERO waste generation in their respective colonies and society they dwell in, contributing positively to the cause of

NO WASTE – NO POLLUTION – NO HEALTH HAZARD.

DISCUSSIONS ON EXECUTIVE SUMMARY:

Environment Audit.

Aerial View of the College Campus.

ENERGY AUDIT REPORT.

Placing of Batteries	**Category 7.1.2, 7.1.3 and 7.1.5**
BATTERY PLACEMENT: The batteries should be placed on an 1. insulated platform not touching any of the metal frames. 2. Need cross ventilation for favorable breathing. 3. Provision for periodical checking and maintenance should be made possible without major obstacles. In absence of the above placement conditions, 1. The batteries will discharge faster. 2. The charging time and current will increase as there is the return path for self discharge. A well maintained battery is known to serve for more than 7 years. The presence of oxidation marks at the point of contact should not develop over the time. We strongly advice for regenerating the batteries once every 3 to 4 years so that they serve over 15 years in liew of 5 years under present conditions. A well maintained battery will draw less charging power, ie saves on energy consumption, delivers more energy per charge thus resulting in better serviced life. For more information on battery Contact Sunshubh renewables & research centre, Hubli	**Batteries stacked for disposal**

ceo@sunshubhrenewables.com.

More images of wrong placement and use of Batteries.

Battery placed in a corner are deprived of breathing space.

Batteries touching the wall or directly placing on the ground will dischanrge them much faster and reduces the backup time.

Electrical Power Usage:

It is important to understand the significance of the Energy use implication. The use of electrical power has been observed to be unnecessary. The administration should initiate to keep all unwanted and unused appliances switched off.

It is observed that the lights are left switched ON at majority of places and thus causing financial losses to the management and energy loss to the country.

Solution:

It is therefore required to install Light Intensity Sensors in all the rooms.

Lighting improvements should be carried out by using T5/LED or The Induction Light systems in lieu of normal tube lights. If the finance department permits, it is advised to install 40W Induction lamps in all classrooms.

Sourse : Can be locally procured, However the load based selection is key aspect in its installation. To set the visibility, the intensisity of natural light is much stronger and hence LUX based setting doesn't work. Hence the technical supervision is key aspect. We suggest to allocate this to the Physics stream of students to understand the Commerce and application of technology.	**Light Intensity & Occupancy sensor** 

It is important to discuss some more on the below clipping. This was picked up from the College website.

<u>Light Intensity Sensor requirement.</u>

It may be seen that the Light is illuminated. However, the brightness on the students is seen to be coming from the sides. The shadow indicates natural light coming from the windows is brighter. Natural light is more predominant than the tube light. Hence tubelight being switched off has no adverse effect. However, it would save on the energy consumption and contribute to green practices.

NATURAL LIGHTING:	Category 7.1.1, 7.1.2, 7.1.3 and 7.1.5
It is found that the windows have not been blocked and also at some areas need to be maintained clean, if not it calls for switching on internal lights. If the windows are cleaned at regular intervals, it will help in increasing the illumination level in the room. Thus preventing switching on lights during day light. It is also important that in no room the stacking of either the material or the placement of rooms should be allowed.	 Cupboards blocking natural day light should be avoided at all places in the campus.

Projector placing.

It is observed that the projector & the screen are placed at a point near the door opening. And the door is kept open for use.

The damaging factors on the placement of these projectors in the present location are,

- The information intended to be desipated is not happening as the readability is not proper.

- Due to high contrast, the students and the audience are put to strain and finally the knowledge may not be digested.
- The students may end up feeling dull and may loose interest in the followup session.
- Movement of students before the projector screen calls for further disturbance and diverts the attention.

Solution :
Move the projector to the far end from the door.
Use opaque curtain if the sitting is in North-South orientation.
The projector screen should fall in line with human vision with head placed in normal position to avoid strain on the neck.
In case the class room sitting is in theatre style, the screen should be placed keeping the above factors in consideration.
Bright spots next to the projector screen should be blocked with dark curtains.

Remedial Measures:

Move the projector to the far end of the class room with dark curtains and placed at an angle suitable for comfort viewing for the first line students.

Windows:

Key observations and requirements on designing the windows.

Windows are necessary for natural lighting and for cross flow of air. However, In educational institutions, the point of concern is that, the distraction of attention.

It is seen that the windows are fitted with transparent glass. The glass should be translucent up to minimum of 4.5 feet. This is necessary to avoid distraction of attention of the students from external movements and happenings around.

The windows, if required to be kept open should be done keeping the distraction factor in view.

It has also been observed that the top part of the window, which is supposed to be the ventilator, has been permanently closed. It is necessary o open this part for indoor exhaust. In present situation, the warm air vented out by human breath geys trapped in the top layer and has no escape path.

As the room temperature rises, the ceiling fans, turned on, churns in the same warm air in the room creating feel of heaviness.

The college buildings is well engineered to allow the natural breeze to flow & maintain comfortable room temperature. However, it is barred by wrong design and placement of windows. Hence, we strongly advise to keep all the ventilators' clean & open. If possible, work with wall mounted Fans to act in line with natural theory of Commerce. **Well designed windows results into reduction of energy demand by 70%**	
Stacking of racks in front of the window, prevents natural illumination. This calls for forced lighting. The air vents are totally blocked and results into very poor air circulation. It is important to understand the impact of such conditions. Off late people have been complaining about dullness/weekness/ vagueness and similar sense of health condition. It is important to understand the basic cause. For all such situations, it is observed and is natural practice to go out for few minutes and start all over again. This is the situation commonly termed as SICK BUILDING SYNDROME. The effects of sick building	

syndrome are well discussed and the management should consider these aspects when utilizing the space. We strongly suggest to seek opinion of the subject expert and relay the stacking arrangement and sitting/reading/studying tables. In the present situations COVID 19 pandamic its very significant.	
Few illustrations and remedial measures. Open the top part of the high rise windows for natural ventilation.	
Newly made aluminum windows should be placed such that the opening is provided at the upper part and the lower portion with translucent panels.	

CHILLER PLANT:

The auditorium is centrally air conditioned. The hall is provided with the Chiller plant.

The chilled water circulation is seen to be exposed to following factors leading to thermal loss and exposed to ambient temperature.

1. Skinned insulation media on pipe line.
2. Wrong indicator for operating the intake air vents.
3. The intake air needs to be treated with UV protection for disinfecting the possible presence of virus.

Observation in Library Reading room.

The reading room is well illuminated using T8 & T12 type tube lights. However the following aspects are seen to be of high level of pollution.

Cutting of natural air circulation system has forced, keeping the fans in operation. However these fans are ceiling mounted and cause seviour gust of turbulent warm/hot air revolving within the reading room causing loss of ideal supply of Oxygen and humidity.

The blocking of the natural day light also calls for illuminating the electrical tube lights thus resulting into increased room temperature.

The table below, lists all the possible hazards and implications, Thesituatrion is termed as "Sick Building Syndrome" ie the SBS situation.

Panaromic view of the library reading room in completely closed doors, windows and ventilators leading to poor air quality and natural illumination.

The table below lists various aspects in detail and points leading to indoor air quality aspects and considerations.

RISK FACTORS OF SBS ie the SICK BUILDING SYNDROME					
Physical	**Chemical**	**Biological**	**Psychosocial**	**Personal**	**Others**
• Environmental parameters of thermal comfort. • Parameters related to building ventilation. • Noise vibrations. • Daylight. • Electromagnetic fields • Ions • Ergonomy • Universal design.	• Constructional and household products. • Formaldehyde • Phthalates • Manmade mineral fibres • Volatile organic compounds • Odours • Environmental tobacco smoke • Other indoor air pollutants	• Moulds • Bacteria • Microbes volatile organic compounds • Room dust	• Occupational stress • Social status • Loneliness, helplessness • Work organisation • Communication • Supervision	• Gender • Individual characteristics, • Health status	• Location, Geopatogenic zones building characterics • Building characteristics • Ownership • Presence of insects, rodents, use of desinsection, deratization, disinfection products.

The beautiful structures planed by the administrators and built by the management clearly indicate that they are concerned about the environment and are committed to deliver good sense of civic discipline and knowingly or unknowingly are exhaling the process of heading towards **ZERO CARBON FOOTPRINT.**

When the infrastructure is in place, the staff are inclined to perform there is nothing that can stop from achieving the required. What is required is the orientation and awareness sessions on the right use.

The designated staff be trained in understanding the needs and allowed to test their innovative skills to move towards Green practices will accelerate the process of green revolution.

EXHIBIT GREEN HABITS:

The college administration, should engage its resources in exhibiting Green Habits as discussed.

ACTION PLAN SUMMARY:

- Earmark the action plan.
- Invite subject experts for Tec talks,
- Organize in person panel discussions and interaction to propagate the knowledge and mitigate the problems in practicing the same.
- Prioritize the initiatives and execute.
- Observe the benefits and shortcomings.
- Workout further improvement by involving the staff and students.

MODE OF ACTION:

- The process of ENERGY AUDIT & ENERGY CONSERVATION should be carried out in three steps.
- Good housekeeping practices using available manpower.
- Minor alterations using in house work culture with minimum investments on accessories as discussed.
- Capital investments, which may be required for installation of new methodologies may be taken up on phased manner.

We will be happy to assist you for any further advice/consultancy if required either on Rainwater management or on any of the measures discussed in the report.

We hope the measures are implemented in good spirit and to human convenience and comfort.

For SUNSHUBH RENEWABLES & RESEARCH CENTRE

Mallikarjun A. Kambalyal. B.E. (E&C)
Certified Energy Auditors EA-3485

Note Sheet:

Note Sheet:

Note Sheet:

NTLR

B.V.V.Sangha's
Basaveshwar Commerce College, Bagalkot

Energy Audit Report 1-8-2022 to 31-8-2023

Report Generated by NICHROME TESTING
Laboratory and Research Pvt Limited. Dharwad

Email:nicechem@gmail.com

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INTRODUCTION:

Energy audit is a valuable means for a college to determine how and where they are using the most energy or water or other resources; the college can then consider how to implement changes and make savings.

Energy Audit is a process of systematic identification, quantification, recording, reporting and analysis of components of environmental diversity of institute. It aims to analyze environmental practices within and outside of the concerned place, which will have an impact on the eco-friendly atmosphere. It can create health consciousness and promote environmental awareness. It provides staff and students better understanding of Green impact on campus.

Hence its important that the college evaluate its own contributions toward a sustainable future. As environmental sustainability is becoming an increasingly important issue for the nation and the role of higher educational institutions vis a vis Energy / Environmental sustainability is more prevalent.

The National Assessment and Accreditation Council, New Delhi (NAAC) has made it mandatory that all Higher Educational Institutions should submit an annual Energy / Environmental / Green Audit Report. Moreover, it is part of Corporate Social Responsibility of the Higher Educational Institutions to ensure that they contribute towards the reduction of global warming through carbon footprint reduction measures.

PREAMBLE:

The policy statement for abatement of pollution (1992) and the subsequent Environment Protection Act 1986 announced by the Government of India seeks integration of environmental considerations into decision making at all levels. Environmental Audit has been recognized as one of the instruments for achieving this objective.

An Environmental statement is an objective assessment, of the extent of compliance of a company with applicable Environmental laws and regulations. It is based upon a review of pertinent records and technical data. The Environmental statement achieves following purposes,

1. Assuring compliance with various Governmental regulations,
2. Reduces environmental risks and liabilities,
3. Cost savings or increasing the efficiency of operations,
4. Indentifies environmental liabilities, if any.

Accordingly, the survey was carried out to review the operations, to collect relevant data like materials consumption, water consumption, waste generated and the pollution prevention method practiced by the Organisation etc. Further improvement plans of the Organisation during the financial year were also noted.

OBJECTIVES

Energy Audit of an institution is increasingly becoming a important self-assessment tool of the institution which reflects the role of the institution in mitigating the present environmental problems. The college has been putting efforts to keep our environment clean since its inception. Therefore, the purpose of the present green audit is to identify, quantify, describe and prioritize framework of Environment Sustainability in compliance with the applicable regulations, policies and standards. The main objectives of carrying out Audit are the following

1. To map the Geographical Location of the college
2. To document the electrical diversity of the college
3. To record the meteorological parameter where college is situated
4. To document the ambient environmental condition of weather, air, water and noise of the college
5. To estimate the Energy requirements of the college and look for alternatives
6. Implement the alternatives and save energy / produce energy for overall environmental sustainability
7. To report the expenditure on green initiatives during the last five years

METHODOLOGY:

The purpose of the Energy audit is to ensure that the practices followed in the campus are in accordance with the Green Policy of the country. The methodology includes: collection of data, physical inspection of the campus, observation and review of the documentation and data analysis.

BRIEF INTRODUCTION OF ORGANISATION:

The Basaveshwar Commerce College, Bagalkot is one of the prestigious institute of Basaveshwar Veerashaiva Vidyavardhaka Sangha, Bagalkot which was founded by His Holiness Shri Gurubasava Mahaswamiji of Bilur in the year 1906, with the opening of a Sanskrit Patashala.
It provided the impetus that propelled a sleepy little town into an Educational, Commercial and Industrial hub of this backward area of Karnataka state.

Main Campus

Aerial View of the College Campus.

BASAVESHWAR COMMERCE COLLEGE

The Basaveshwar Commerce College is part of B.V.V.Sangha, which was established in 1970 with 50 students. The college has become predominant in the field of commerce and management education within a span of five decades. Basaveshwar Commerce College is the only independent commerce college in Bagalkot district. At present, nearly 1800 students are studying at the College. The college is offering various courses such as B.Com, B.B.A, M.Com and CA foundation coarse. The college has committed and dedicated faculty by large, it is committed for academic excellence and all-round development of the students.

The Alumni of college are serving at their various capacities around the world. Some of them are leading chartered accountants, judicial officers, people's representatives, government officers, and entrepreneurs. In total Basaveshwar Commerce College is one of the outstanding colleges in Karnataka.

Bagalkot, is a city in the state of Karnataka, India, which is also the headquarters of Bagalkot district. It is situated on branch of River Ghataprabha about 481 km (299 mi) northwest of state capital Bangalore, 410 km (255 mi) southwest of Hyderabad, and about 570 km (354 mi) southeast of Mumbai. The population of the urban agglomeration was 111,933 according to the provisional results of 2011 national census of India, and the city is spread over an area of 49.06 square kilometres (18.94 sq mi)[2] with an average elevation of 532 m (1,745 ft) above MSL.

Our Vision

Imparting Excellent Education and Training in Commerce and Business Administration, thereby earning a unique Distinction as Top-notch Commerce Institution in North Karnataka

Our Mission

Basaveshwar Commerce College was established in 1970 with a great mission of imparting professional education in commerce, Business Administration & Management at U.G & P.G. Levels.

The Broad Goal of the college is to respond to the ever-changing needs & expectation of Business Environment and Demands of the community by molding students into accountable citizens, developing a sense of Dedication, Social Conscience and Commitment.

Objectives of organisation

To bring out graduates of excellence, complete character and integrity to venture into right vocations, professions and entrepreneurship.
To harness the students potential through coordinated efforts and personal attention.

CORE VALUE

- Critical thinking and problem solving.
- Leadership.
- Encouraging and building student ability, character and creativity.
- Ethics: We believe in acting with honesty, courage, and trustworthiness.
- We value an institutional attitude and culture that promotes and supports total health and wellness of staff and students.
- Excellence: Maintain a high standard of integrity and performance leading to the achievement of academic and professional goals.

ENVIRONMENT PLEDGE

We, The Principal, staff and students, adopt responsible practices in our days energy use with due regard to the environment. We pledge to avoid using electrical power where not needed. We also pledge to use judiciously the electrical power by using Energy efficient products.
We shall practice to switch off all appliances when not in use.

PURPOSE:
To realistically and comprehensively reduce energy consumption, assure acceptable indoor air quality, and improve energy efficiency on campus through methods that are consistent with a safe, secure, and inviting campus community. As outlined in this policy, Environment conservation will be accomplished by developing a proactive and progressive approach to providing energy efficient, responsible, and cost effective operations on campus. This policy will be reviewed and updated periodically as public awareness, management techniques, and technologies change.

APPLIES TO: Faculty, staff, students, and visitors.

CAMPUS: BVV Sangha's Basaveshwar Commerce College, Bagalkot.
We pledge to speak in open forums for the energy conservation first, Energy Efficiency next and eliminating of High Energy use appliances for better or low energy use one's.
We commit ourselves to the safe operation of all our needs, be it in classrooms, library, canteen, on road, off road, in-campus out-campus as well as at our place of stay.
We adhere to reduce environmental load by efficiently using resources, saving energy, reducing waste, encouraging material recycle, with special emphasize to minimising emissions of greenhouse gases, ozone depleting substance and particle matter. we endure to minimise environmental loads and adopt environmentally friendly technologies when ordering and purchasing necessary products and resources.

We endure to attend educational programs and promulgate our close friends and colleagues to follow suite.

We endure to ensure that we recognize the essence of this Energy use policy by actively and aggressively conducting workshops and training to all in environmental concepts.
We make wide ranging social contribution to close association with the students, teaching staff, administrative staff, housekeeping staff by disclosing Energy use (Star rating appliances) information and supporting minimized consumption of Energy.

ENVIRONMENT, OCCUPATIONAL HEALTH AND SAFETY POLICY

BVV SANGH'S COMMERCE COLLEGE, BAGALKOT in its continual improvement shall be achieving Environmental, Occupational, health, and safety management system by

1. Providing good working condition and healthier environment to all employees
2. Optimum usage of natural resources by reducing, recycling and re using Prevention of pollution by minimizing waste generation and proper disposal of waste generated by all activities
3. Prevention of health and injuries by adopting safe working practices in all operations Comply with all applicable environmental requirements

Basic Activity : Education Activity : Commerce College with B.Com Facility.

Faculty : 58 Number of Students : 1650

LAND USE DATA

CATEGORIES OF LAND USE	AREA (m2)
PLANTATION AREA	965 Sq.m
BUILT UP AREA (INCLUDE ROADS)	1350 Sq.m
TOTAL AREA	2315 Sq.m

ELECTRICAL POWER CONSUMPTION:

Power consumption on an average is 9 kWh (units) of electricity per day. As a policy decision, the authority keeps on replacing the old filament bulbs, CFL bulbs and tube lights by low energy consuming LED bulbs and LED tubes **(completed this year 2022 in all class rooms, library and administrative office)** and bulky high-power consuming fans by energy efficient fans in order to keep the electricity consumption of the college as low as possible (to be completed shortly). This has led to substantial saving of energy.

In addition, College has installed UPS of 38 kVA and a standby generator of 15 KVA.

In addition to making Environmental Studies a very vital subject in our syllabus, our organisation has gone a step further by putting that theory into practice.

The college has **installed solar water heaters** having a capacity of 500 lit / hour. The energy from this solar installation is helping offset the institute's daytime peak electricity demand from the grid. Our Organisation was able to **offset part of energy usage from the state grid** thus moving towards a more reliable and greener option and **reducing its carbon foot print.**

OBSERVATIONS

Electrical Power Usage:

It is important to understand the significance of the Energy use implication. The use of electrical power has been observed to be unnecessary. The administration should initiate to keep all unwanted and unused appliances switched off.
It is observed that the lights are left switched ON at majority of places and thus causing financial losses to the management and energy loss to the country.

Solution:

Lighting improvements should be carried out by using T5/LED or The Induction Light systems in lieu of normal tube lights. If the finance department permits, it is advised to install 40W Induction lamps in all classrooms. It is advisable to install Light Intensity Sensors in all the rooms.

NATURAL LIGHTING: Category 7.1.1, 7.1.2, 7.1.3 and 7.1.5

It is found that the windows have not been blocked and also at some areas need to be maintained clean, if not it calls for switching on internal lights. If the windows are cleaned at regular intervals, it will help in increasing the illumination level in the room. Thus preventing switching on lights during day light.

It is also advised to increase the natural lighting wherever possible which in turn will decrease the energy requirement due to lighting.

It is also important that in no room the stacking of either the material or the placement of rooms should be allowed. Cupboards blocking natural day light should be avoided at all places in the campus

Windows:

Key observations and requirements on designing the windows.

Windows are necessary for natural lighting and for cross flow of air. However, In educational institutions, the point of concern is that, the distraction of attention.

It has also been observed that the top part of the window, which is supposed to be the ventilator, has been permanently closed. It is necessary o open this part for indoor exhaust. In present situation, the warm air vented out by human breath is trapped in the top layer and has no escape path.

As the room temperature rises, the ceiling fans, turned on, churns in the same warm air in the room creating feel of heaviness.

The college buildings is well engineered to allow the natural breeze to flow & maintain comfortable room temperature. However, it is barred by wrong design and placement of windows.

Hence, we strongly advise to keep all the ventilators' clean & open. If possible, work with wall mounted Fans to act in line with natural theory of Commerce.

Well designed windows results into reduction of energy demand by 70%

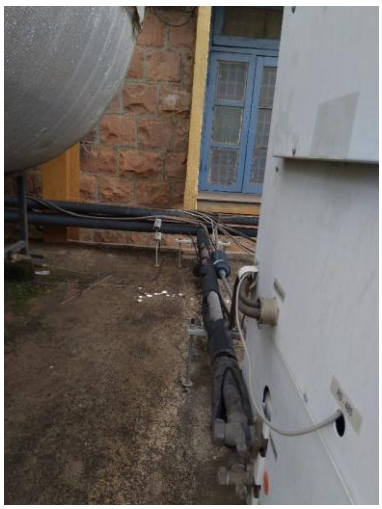
The library / reading room is well illuminated using T8 & T12 type tube lights. However the following aspects are seen to be of high level of pollution.
Cutting of natural air circulation system has forced, keeping the fans in operation. However these fans are ceiling mounted and cause hot air revolving within the reading room causing loss of ideal supply of Oxygen and humidity.

Stacking of racks in front of the window, prevents natural illumination. This calls for forced lighting. The air vents are totally blocked and results into very poor air circulation.

CHILLER PLANT:

The auditorium is centrally air conditioned. The hall is provided with the Chiller plant.
The chilled water circulation is seen to be exposed to following factors leading to thermal loss and exposed to ambient temperature.

1. Skinned insulation media on pipe line.
2. Wrong indicator for operating the intake air vents.

BATTERY PLACEMENT: (Placing of Batteries Category 7.1.2, 7.1.3 and 7.1.5)

The batteries should be placed properly

1. Insulated platform not touching any of the metal frames.
2. Need cross ventilation for favorable breathing.
3. Provision for periodical checking and maintenance should be made possible without major obstacles.

In absence of the above
1. The batteries will discharge faster.
2. The charging time and current will increase as there is the return path for self discharge.

The presence of oxidation marks at the point of contact should not develop over the time.
A well maintained battery will draw less charging power, ie saves on energy consumption, delivers more energy per charge thus resulting in better serviced life.

Batteries stacked for disposal

SUGGESTIONS

Suggestions are as follows

1. **Energy wastages need to be arrested and switch over to well lighted buildings or LED usage (completed). To Change in phased manner the non energy efficient fans to energy efficient fans.**
2. **Saving of energy to be assessed and targets fixed YOY**
3. **Energy Audit to be followed with Energy Conservation e.g switching off lights and fans when not being used.**
4. **For Power factor improvement capacitor bank to be provided**
5. **Battery related improvements - Like ventilation, maintenance etc. Battery be given back to manufacturers only whenever replaced with proper discounts taken for the existing batteries.**
6. **Insulations to be checked across the campus and improvements to save energy**
7. **Illumination in rooms to be taken up to save energy.**
8. **Vehicle usage may be reduced in the campus which will have reduction in CO2 emissions. EV vehicles may be encouraged. Similarly pooling of members for vehicle usage will also reduce CO2 emissions.**
9. **Signage's be put across the whole of campus (Energy conservation, Safety, Environment, Botanical names, etc)**
10. **Next Audit, Carbon Foot print to be included and reduction of Carbon Foot Print to become a goal of the Organisation**
11. **Thermo vision camera to be used to identify the hot spot area and rectify if required**

ACTION PLAN SUMMARY:

- Make an action plan both short term and long term.
- Execute plan as per schedule. Invite subject experts if required,
- Organize in person panel discussions and interaction to propagate the knowledge of energy conservation and mitigation.
- Prioritize the initiatives and execute.
- Observe and record the benefits and shortcomings.
- Workout further improvement by involving the staff and students.

AUDITED TEAM AND THEIR CREDENTIALS

DR KRISHNA N KULKARNI **BE(Chem), MTech (Chem), PhD (Geology)**

Environmental Expert

In the Environmental Field for the last 25 years having completed many Audits of Colleges, Industries and their compliances as per Ministry of Environment, Forests and Climate Change, New Delhi. Also an expert in Design, Execution and Operations of Waste Water Treatment Plants

Shri Ramesh Upadhye **B.Tech(Electrical Power)**

Electrical Expert

Former employee of POWERGRID (Central Government) and been in the field of Academics and Electrical Audits. Experience of more than 35 years

Shri Shrikantha Joshi **BE(Civil)**

Civil Engineering Expert

Expert on design of Buildings, Audits in Civil engineering area. Experience of more than 25 years

Shri Kallappa Udhoji

Bachelor in Science (Chemistry)

Formerly QA / QC Head - Lab Division, ADM Oil Industries. Analytical Expert and Incharge of Nichrome Testing Laboratory and Research Pvt Ltd Lab Section. Experience of more than 30 years

Organisation : M/s Nichrome Testing Laboratory and Research Private Limited

Address : 170, 2nd Main Road, Narayanpur, Dharwad - 580008. Email : nicechem@gmail.com

Recognitions and Certifications :

- **NABL Accredited,**
- **MoEF & CC / CPCB Recognised,**
- **ISO 9001 : 2015**
- **ISO 45001 : 2018 Certified**
  (Certificates Enclosed)

ENVIRONMENT AUDIT REPORT

FOR

BVV Sangha's, Basaveshwar Commerce College, Bagalkot.

BASED ON BEST ENVIRONMENT PRACTICES.

CONSERVATION OVER EFFICIENCY: EDUCATE, PRACTICE, ADVOCATE & MANAGE.

EXECUTIVE SUMMURY.

Sr No	Obse-rvation*	Problems*	Resulting losses*	Remedial measures*	Capital*	Projected savings*	Category 7
1	Battery placement	Battery shell in conductor loop	Low performance & self-discharge.	Design the stacking arrangements.	In house resources	Prolonged life cycle of the batteries.	7.1.2 7.1.6
2	Battery regeneration.	Short life span	300% of the cost of the battery.	Subject all batteries to regeneration made.	Rs.20.00 Lacs or as per user agreement	300 %	7.1.2 7.1.6
3	Natural Lighting	Un cleaned windows and ventilators, forced switching on of tube lights	High energy bills	Clean the windowpanes and allow maximum natural light penetration.	Nil, part of routine, In house manpower.	Substantial cost of energy bills on lighting. Less energy low impact on Environment pollution.	7.1.2 7.1.6
4	Natural Ventilation	Permanently closed ventilators.	Creation of hot air pockets below the ceiling.	Open the Ventilators for easy exit of hot/warm air from the rooms.	Nil, In house manpower.	Eliminates use of Electrical Fans and Substantial cost of energy bills	7.1.2 7.1.6

Sr No	Obse-rvation*	Problems*	Resulting losses*	Remedial measures*	Capital*	Projected savings*	Category 7
5	Placement of projector	Information not visible/high brightness	No objectives are delivered	Re align.	Nil,	Prevention of visibility pollution. Strain on students eyes.	7.1.7
6	Solid waste disposal	Long distance traversing for waste disposal	Random disposal in open	Dustbins at short distance preferable before every classroom.	Rs.1500/- per set of segregated waste collection bins.	Ease of waste disposal	7.1.3
7	Waste water manageme nt.	Gray water emitting foul smell.	Ill-health feeling.	Treatement using natural measures or forced treatement.	Rs.30000/-	Good environmental practices.	7.1.4
	*** For details please follow the discussions in the report.**						

ENVIRONMENT AUDIT COMPLETION CERTIFICATE

I, Mallikarjun A. Kambalyal endorse and confirm that this report is generated based on the site visits and evidence collected from the site.

All attempts have been made to evaluate the scope for development and inculcate green practices in the campus and extended through out the campus. The focus is also laid to make positive impact on the society for a better living.

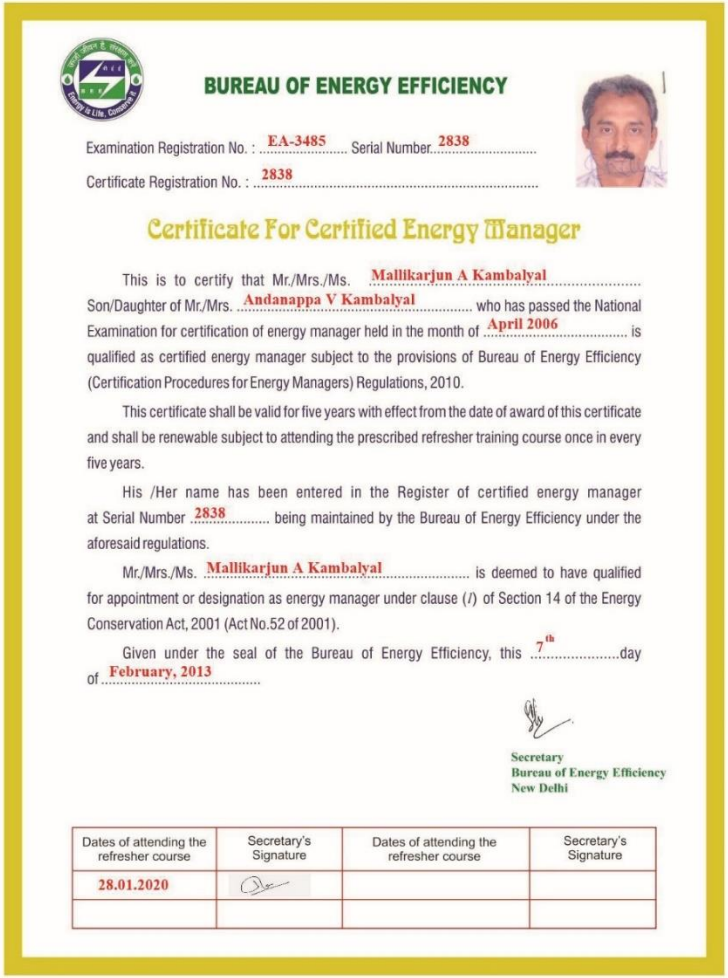
I also confirm and sign this certificate, In case the institution needs demonstration, my team of professionals shall be happy to do so.

We present this report to fulfill the citizens moral responsibilities much more than the legal or mandatory compliances. This report is tabled in two parts. The first forms the core discussions which are general in nature. The second section is subject specific under the statutory requirements of the NAAC accreditation norms. They are Audit reports on, Green aspects, Energy aspects, Environment aspects, Health aspects and the discussions on net CARBON FOOTPRINT & the CARBON HANDPRINT initiatives.

Any modifications, changes, omissions after the site visit shall be exclusive.

Certified Auditor.
Mallikarjun A. Kambalyal B.E (E&C)
Certified Energy Auditors EA-3485& ISO 50001:2011 & ISO14001:2015 Lead Auditor.

Credentials attached
7.1.6



BUREAU OF ENERGY EFFICIENCY

Examination Registration No. : EA-3485 Serial Number 2838

Certificate Registration No. : 2838

Certificate For Certified Energy Manager

This is to certify that Mr./Mrs./Ms. Mallikarjun A Kambalyal Son/Daughter of Mr./Mrs. Andanappa V Kambalyal who has passed the National Examination for certification of energy manager held in the month of April 2006 is qualified as certified energy manager subject to the provisions of Bureau of Energy Efficiency (Certification Procedures for Energy Managers) Regulations, 2010.

This certificate shall be valid for five years with effect from the date of award of this certificate and shall be renewable subject to attending the prescribed refresher training course once in every five years.

His /Her name has been entered in the Register of certified energy manager at Serial Number 2838 being maintained by the Bureau of Energy Efficiency under the aforesaid regulations.

Mr./Mrs./Ms. Mallikarjun A Kambalyal is deemed to have qualified for appointment or designation as energy manager under clause (*l*) of Section 14 of the Energy Conservation Act, 2001 (Act No.52 of 2001).

Given under the seal of the Bureau of Energy Efficiency, this 7th day of February, 2013

Secretary
Bureau of Energy Efficiency
New Delhi

Dates of attending the refresher course	Secretary's Signature	Dates of attending the refresher course	Secretary's Signature
28.01.2020			

Certificate of Successful Completion

Intertek

This is to Certify that

MALLIKARJUN A KAMBALYAL

has successfully completed the

Intertek

CQI & IRCA Certified ISO 14001:2015
Auditor Conversion Training Course

The Course includes the assessment and evaluation of Environmental Management Systems to conform to the requirements of ISO 14001:2015 and ISO 19011:2011

This course is certified by the Chartered Quality Institute (CQI) and the International Register of Certificated Auditors (IRCA)
– IRCA REFERENCE 18093 –

The course meets the training requirements for individuals seeking certification under the IRCA Auditor Certification Schemes

CQI | IRCA
APPROVED TRAINING PARTNER

Authorising Signature: Vyara Stoimova

Course Dates: 14th – 16th July 2017 *Certificate Number: 47730*

Membership Application To Be Made Within 3 Years From Last Day of Course

121807

Bureau of energy Efficiency Egd No: EA3485 **ISO Certified Lead Auditor. Certificate No: 47730**

bsi.

By Royal Charter

BSI Training Academy

This is to certify that

Mallikarjun A. Kambalyal

has attended and passed

Energy Management Systems (ENMS) Auditor/Lead Auditor Training Course
(ISO 50001:2011)

Premanand Ramakrishnan, Director of Training

Date: 14/04/2016 - 18/04/2016
Certificate Number: ENR-00253448

This certificate is valid for 3 years from the date above for the purpose of registering as an auditor with IRCA.

Course number A17583 certified by IRCA

...making excellence a habit.™

The British Standards Institution is incorporated by Royal Charter
BSI India, The Mira Corporate Suites (A-2), Plot 1 & 2 Ishwar Nagar Mathura Road, New Delhi 110065, India Tel: +91 11 2692 9000

ISO Certified Lead Auditor. Certificate No: ENR-00253448

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Audit objectives.

Know
- Why?
- Where?,
- What?,
- When?,
- How?,

about this Audit and the objectives .....

Environment Audit was initiated in the beginning of 1970's, with the motive of inspecting the work executed within an organization, whose exercises could cause risk to the health of inhabitants and the environment. It exposes the genuineness of the proclamation made by the organisation with the concern on health issues. As a consequence of their operations with respect to environmental pollution it is the duty of the organisation to carry out the Environment audit of the ongoing processes for various reasons, such as,

- To make sure whether one is performing in accordance with the relevant rules and regulations,
- To improve the procedures and aptness of material in use,
- To analyse the potential duties and to determine a way which can lower the cost and to the revenue.

Through Environment audit one gets adoration as, how to improve the condition of the environment. There are various factors that were forced upon and determine the growth of/or conduct of Environment audit. Incidents like,

- Decades old Bhopal gas tragedy, that has left its residual effect which still haunts us.
- Our buildings catching fire due to various reasons,
- Industries blowing off taking valuable human lives etc
- People going sick, feeling tired, after long hours of operations in the organization,
- Increased demand of generators due to inconsistent power supply, which has resulted or lead into recent floods and droughts,

are some of the situations to ponder about.

To address various issues in context with human health, Environment audit is assigned to "Criteria 7" of NAAC (National assessment and accreditation council) accreditation. NAAC is a self-governing organization in India that declares the institutions as Grade "A", Grade "A+", or Grade "A++" …, according to the scores assigned at the time of accreditation.

The other intention of organising Environment audit is to update the environment conditions in and around the institutions ie., within the compound and outside the compound. It is carried out with the aid of performing certain tasks like waste management, energy consumed, diesel burnt it performing the objective of the organization. Lastly to self-assess the net carbon footprint of the conduct of process in the organization.

The goals of Environment audit

- The purpose of carrying out Environment audit is securing the environment and cut down the threat posed to human health.
- To Make sure that rules and regulations are complied with.
- To avoid the environmental interruptions that are more difficult to handle and their corrections call for high cost.
- To suggest the best protocol for adding to sustainable development.
- To execute the process of the organisation utilising minimum natural resources and efficient use of those resources contributing to minimum waste generation.

How is is the Environment audit conducted

Pre-audit

- Planning
- selecting the team of auditors both internal and external
- schedule the audit facility
- acquire the background information
- visit areas under audit

On site conditions:

- Understand the scope of audit
- Analyse the strengths and weaknesses of the internal controls
- Conduct audit with end user comfort focused and making it easy to perform.
- Collect necessary evidence so that the stakeholders stand to understand how and where they are going wrong in the process of their conduct.
- Post audit draw the report based on the data collected.
- On confirmation of the preliminary report, draw a final report of the observations and inference with accuracy more near to implementable way.
- Discuss various remedial measures for alternatives if required.
- Prepare an action plan to overcome the shortcomings with continual observation on the action plan initiated.

Steps under Environment audit

Water audit: Water is one of the cheapest commodity next to the Air we breathe. Although we Indians, use less water in comparison to western countries. However, the extent of pollutants that we leave behind has polluted all the resources including the deep well.

Rainwater harvesting is one of the best techniques that can be adopted by harvesting the rainwater and using it at the time of scarcity. The audit team to observe and investigate the relevant methods that can be adopted and implemented and draw the balance of, use of water.

Waste management audit: The point of generation of waste, the type of waste generated, i.e, hazardous, recyclable and organically compostable wastes and segregating method at the point of generation for easy and best way to handle the same. Evaluating such methods to minimise the use of resources in the process of their management.

Energy audit: It deals with use of energy in the conduct of the process. The priority is topmost for conservation over efficiency; hence, energy auditor should always consider not to use the energy if necessary. At best it can be used judiciously.

Environmental quality audit: It analyses air quality, noise level and the programs undertaken by the institution for plantation creating awareness of trees around us and how nature provides us with remedial measures within its framework.

Health audit: In the process of use of resourses and conduct of the activities, they can develop impact on human health, that might be off minutely harmful, cause permanent disorder or may even cause death. Occupational health hazards are discussed in detail and the stakeholders are informed of the same and required necessary remedial measures indicated.

Renewable energy: To make the organisation net zero carbon emission, use of renewable resources including energy such as solar, wind, biogas, geothermal energies are put into utilisation.

.Carbon handprint: The net impact of all the above audits should be to make an organisation contribute zero emissions, which are caused by use of water, generation of waste, use of energy environmental damage, health damage and finally to explore if the campus can go in contributing to third-party emissions/minimising

Benefits of green audit: To draw home the benefits, the system has been separated into various audits as listed above. In doing so, and if audit findings are effectively implemented, there are many advantages, that can be practiced in the process

- Recognise the cost saving methods through waste minimising and managing technologies.
- Point out the prevailing and forth coming complications.
- Authenticate conformity with the legal requirements.
- Empower the organisation to frame a better environmental performance.
- Portray a good image of the institution which helps to build better relationships with the group of organisations, stakeholders in and around its operations
- Enhance the alertness for environmental guidelines duties and conduct of preparedness for any eventualities due to environmental disasters.

Vision Statement of the institute

The Basaveshwar Commerce College is one of the prestigious institute of Basaveshwar Veerashaiva Vidyavardhaka Sangha, Bagalkot which was founded by His Holiness Shri Gurubasava Mahaswamiji of Bilur in the year 1906, with the opening of a Sanskrit Patashala.

It provided the impetus that propelled a sleepy little town into an Educational, Commercial and Industrial hub of this backward area of Karnataka state.

Our Vision

Imparting Excellent Education and Training in Commerce and Business Administration, thereby earning a unique Distinction as Top-notch Commerce Institution in North Karnataka

Our Mission

Basaveshwar Commerce College was established in 1970 with a great mission of imparting professional education in commerce, Business Administration & Management at U.G & P.G. Levels.

The Broad Goal of the college is to respond to the ever-changing needs & expectation of Business Environment and Demands of the community by molding students into accountable citizens, developing a sense of Dedication, Social Conscience and Commitment.

Objectives

To bring out graduates of excellence, complete character and integrity to venture into right vocations, professions and entrepreneurship.

To harness the students potential through coordinated efforts and personal attention.

Core Values

Critical thinking and problem solving.
Leadership.
Encouraging and building student ability, character and creativity.
Ethics: We believe in acting with honesty, courage, and trustworthiness.
We value an institutional attitude and culture that promotes and supports total health and wellness of staff and students.
Excellence: Maintain a high standard of integrity and performance leading to the achievement of academic and professional goals.

Core Values of the Institution.

We, The Principal, staff and students, adopt responsible practices in our days energy use with due regard to the environment. We pledge to avoid using electrical power where not needed. We also pledge to use judiciously the electrical power by using Energy efficient products.
We shall practice to switch off all appliances when not in use.

PURPOSE:

To realistically and comprehensively reduce energy consumption, assure acceptable indoor air quality, and improve energy efficiency on campus through methods that are consistent with a safe, secure, and inviting campus community. As outlined in this policy, Environment conservation will be accomplished by developing a proactive and progressive approach to providing energy efficient, responsible, and cost effective operations on campus. This policy will be reviewed and updated periodically as public awareness, management techniques, and technologies change.

APPLIES TO: Faculty, staff, students, and visitors.

CAMPUS: BVV Sangha's Basaveshwar Commerce College, Bagalkot.

We pledge to speak in open forums for the energy conservation first, Energy Efficiency next and eliminating of High Energy use appliances for better or low energy use one's.
We commit ourselves to the safe operation of all our needs, be it in classrooms, library, canteen, on road, off road, in-campus out-campus as well as at our place of stay.
We adhere to reduce environmental load by efficiently using resources, saving energy, reducing waste, encouraging material recycle, with special emphasize to minimising emissions of greenhouse gases, ozone depleting substance and particle matter. we endure to minimise environmental loads and adopt environmentally friendly technologies when ordering and purchasing necessary products and resources.
We endure to attend educational programs and promulgate our close friends and colleagues to follow suite.
We endure to ensure that we recognize the essence of this Energy use policy by actively and aggressively conducting workshops and training to all in environmental concepts.
We make wide ranging social contribution to close association with the students, teaching staff, administrative staff, housekeeping staff by disclosing Energy use (Star rating appliances) information and supporting minimized consumption of Energy.

Principal

DAY's ENVIRONMENT USE PLEDGE (proposed)

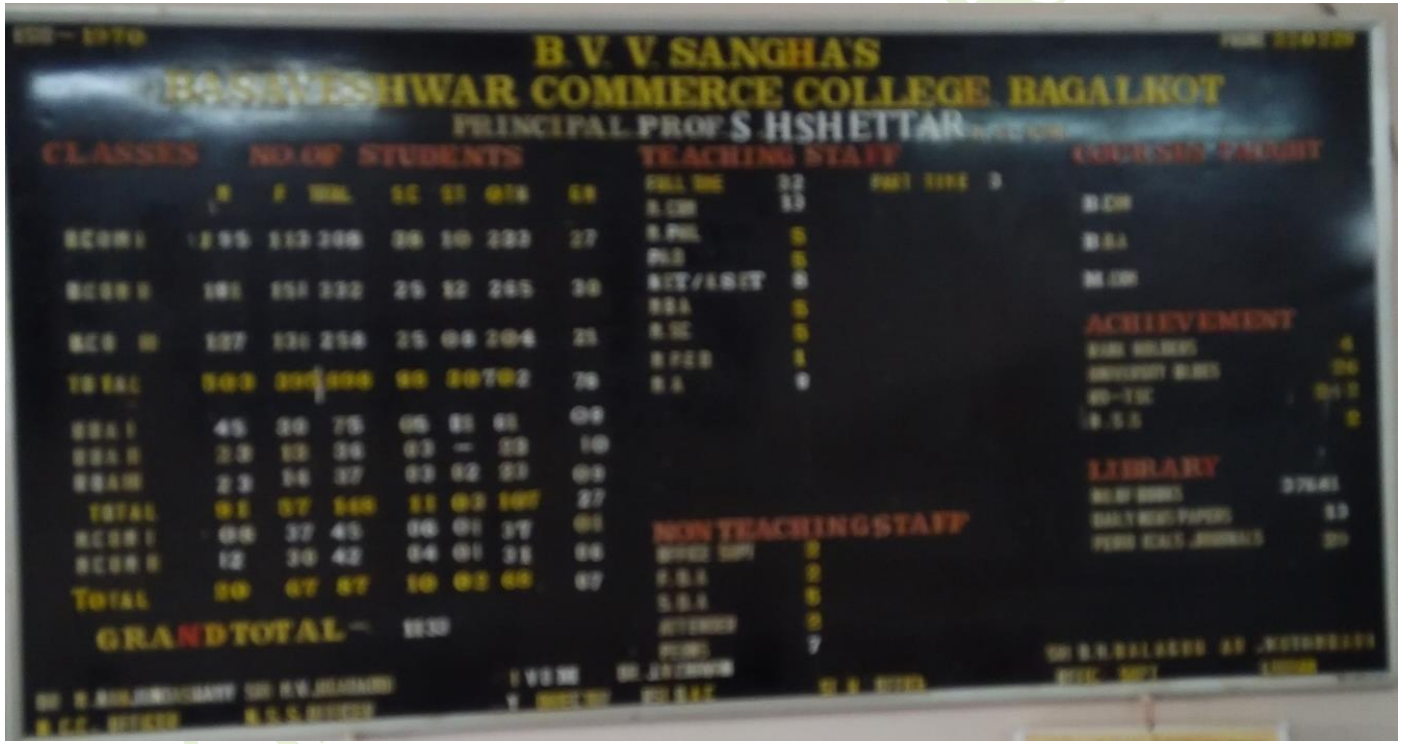
(indicative templet for display at all prominent areas, classrooms, waiting rooms, canteen, library, relaxing areas in the campus.)

BASAVESHWAR COMMERCE COLLEGE

The Basaveshwar Commerce College is part of B.V.V.Sangha, which was established in 1970 with 50 students. The college has become predominant in the field of commerce and management education within a span of five decades. Basaveshwar Commerce College is the only independent commerce college in Bagalkot district. At present, nearly 1800 students are studying at the College. The college is offering various courses such as B.Com, B.B.A, M.Com and CA foundation coarse. The college has committed and dedicated faculty by large, it is committed for academic excellence and all-round development of the students. The Alumni of college are serving at their various capacities around the world. Some of them are leading chartered accountants, judicial officers, people's representatives, government officers, and entrepreneurs. In total Basaveshwar Commerce College is one of the outstanding colleges in Karnataka.

Overview of the institution.

College Outlay Board



All the discussions in the report evolve around the social existence of the citizens, the economic contribution factors, The industrial establishment and opportunities for entrepreneurship.

Bagalkot, is a city in the state of Karnataka, India, which is also the headquarters of Bagalkot district. It is situated on branch of River Ghataprabha about 481 km (299 mi) northwest of state capital Bangalore, 410 km (255 mi) southwest of Hyderabad, and about 570 km (354 mi) southeast of Mumbai. The population of the urban agglomeration was 111,933 according to the provisional results of 2011 national census of India, and the city is spread over an area of 49.06 square kilometres (18.94 sq mi)[2] with an average elevation of 532 m (1,745 ft) above MSL.

Education.

Bagalkot has a number of educational institutions, including Basaveshwara Vidya Vardhaka Sangha and Sakri Sangha. A number of colleges are affiliated with Rani Channamma University, Belgaum, Visvesvaraya Technological University, Rajiv Gandhi University of Health Commerces, Ramanagara. Basaveshvara Engineering College (BEC) was established in 1963. S Nijalingappa Medical College, HSK (Hanagal Shree Kumareshwar) Hospital and Research Centre, Bagalkote is affiliated with Rajiv Gandhi University of Health Commerces.

The University of Horticultural Commerces (UHS) is headquartered in Navanagar, Bagalkote with its constituent colleges spread across the state.

Economy.

Agriculture is the largest employer in Bagalkot, with over 65% of the working population engaged in it; approximately 80% of female workers in Bagalkot are engaged in agriculture. Like most of north Karnataka, Bagalkot is very rich in black soil which is conducive to the cultivation of cotton. Bagalkot's economy was valued at US$5.6 billion, making it the 12th largest economy in Karnataka. The approximate per capital income is US$360. The chief crops cultivated are rabi and jowar, as well as groundnut, cotton, maize, bajra, wheat, sugarcane and tobacco. Jowar is largely cultivated because it can be grown during rainy seasons as well as during the winters. The crop also is the chief supply of food for the people. Pulses are also grown in the region, primarily *tuvar daal*, gram, kulith and *mūng daal*. Castor oil, linseed and sesamum are also

FACTOR CONSIDERATION.

Sourse :

https://en.wikipedia.org/wiki/Bagalkot_district

Keeping civilized and self-sustainable growth contribution, all discussions in the report are based on the factors driving the civilization of the city and the nearby areas and their work culture.

grown in Bagalkot. Water supply for irrigation includes reservoirs such as the Kendur reservoir, which is six miles from Badami and the Muchkundi reservoir, which is 4 miles from Bagalkot. Famine due to lack of adequate rains is quite common in Bagalkot. A famine that struck the region in 1901 inflicted considerable financial loss to the agricultural industry in Bagalkot. The district has the fifth highest farmer suicide rate in Karnataka.[18] Efficient water management techniques and government sops have only marginally mitigated the repercussions of the drought stricken district.

A sizable proportion of the population also consists of weavers. The chief manufactures are cotton and silk cloths. Large quantities of cotton yarn are also dyed and exported to other parts of the state and country. Most of the immigrants in the district are either money lenders or cloth merchants.

Industries.

The focus sectors include agriculture, cement, sugar-based industries, silk and handloom industries.

It is one of the two handloom units (other is Dharwad) in India from where woven khadi is obtained and transported to Karnataka Khadi Gramodyoga Samyukta Sangha based in Hubli (which is the only licensed flag production and supply unit in India).

Many new industries are planning to begin in Bagalkot. New cement industries have been registered and are waiting for the permission to begin. There are other small-scale industries like Cement Pipe Industry which produce cement pipes, Bangle Industries which produce bangles, Match Stick Industries, Agarbatti Industries, Plastic Bag Industries etc. in Bagalkot. At the outskirts of Bagalkot city there are many small-scale industries set up. These come under the Vidyagiri area of Bagalkot city, which is the latest extension of the city. Small-scale industries like Ceramic Tile Industry, tyre industry, Stone Cutting And polishing Industry, milk Dairy etc. are running successfully. At Gaddanakeri there are many limestone industries and brick industries. The limestone industries produce lime for whitewash and painting. The brick industries produce bricks required for the construction of houses. There are local oil industries and oil refineries which produce oil from groundnuts, sunflower, sesamum orientale, cotton etc.

Bagalkot

City

Coordinates: 16.1817°N 75.6958°ECoordinates: 16.1817°N 75.6958°E

Bagalkot

Location in Karnataka, India

Country	India
State	Karnataka
Region	Bayaluseeme
District	Bagalkot
Government Type	City Municipal Council (CMC)
Body	Bagalkot CMC & BTDA
Total Area	49.06 km² (18.94 sq mi)
Elevation	537.06 m (1,762.01 ft)
Total Population (2011)	112,090
Density	2,183/km² (5,650/sq mi)
Demonym(s)	Bagalkotiens
Official Languages	Kannada
Time zone	UTC+5:30 (IST)
PIN	587101-105
Telephone code	08354
Vehicle registration	KA-29, KA-48
Website	bagalkot.nic.in

BAGALKOT WEATHER BY MONTH // WEATHER AVERAGES

	January	February	March	April	May	June	July	August	September	October	November	December
Avg. Temperature (°C)	23.5	25.4	28	29.4	29.3	26.4	24.9	24.9	25.2	25.4	23.9	22.7
Min. Temperature (°C)	16.8	18.3	20.8	22.7	23	22	21.5	21.3	21	20.6	18.4	16.5
Max. Temperature (°C)	30.2	32.5	35.2	36.2	35.7	30.9	28.3	28.5	29.4	30.3	29.5	29
Precipitation / Rainfall (mm)	0	3	5	30	66	80	113	87	145	124	24	6

Data: 1982 - 2012
The difference in precipitation between the driest month and the wettest month is 145 mm | 6 inch. The variation in temperatures throughout the year is 6.7 °C | 44.1 °F.

Source : https://en.climate-data.org/asia/india/karnataka/bagalkot-51062/

Average annual rainfall recorded is around 683mm.

EXECUTIVE SUMMURY.

Sr No	Obse-rvation*	Problems*	Resulting losses*	Remedial measures*	Capital*	Projected savings*	Category 7
1	Battery placement	Battery shell in conductor loop	Low perfomance & self-discharge.	Design the stacking arrangements.	In house resourses	Prolonged life cycle of the batteries.	7.1.2 7.1.6
2	Battery regeneration.	Short life span	300% of the cost of the battery.	Subject all batteries to regeneration made.	Rs.20.00 Lacs or as per user agreement	300 %	7.1.2 7.1.6
3	Natural Lighting	Un cleaned windows and ventilators, forced switching on of tube lights	High energy bills	Clean the windowpanes and allow maximum natural light penetration.	Nil, part of routine, In house manpower.	Substantial cost of energy bills on lighting. Less energy low impact on Environment pollution.	7.1.2 7.1.6
4	Natural Ventilation	Permanently closed ventilators.	Creation of hot air pockets below the ceiling.	Open the Ventilators for easy exit of hot/warm air from the rooms.	Nil, In house manpower.	Eliminates use of Electrical Fans and Substantial cost of energy bills	7.1.2 7.1.6

Sr No	Obse-rvation*	Problems*	Resulting losses*	Remedial measures*	Capital*	Projected savings*	Category 7
5	Placement of projector	Information not visible/high brightness	No objectives are delivered	Re align.	Nil,	Prevention of visibility pollution. Strain on students eyes.	7.1.7
6	Solid waste disposal	Long distance traversing for waste disposal	Random disposal in open	Dustbins at short distance preferable before every classroom.	Rs.1500/- per set of segregated waste collection bins.	Ease of waste disposal	7.1.3
7	Waste water management.	Gray water emitting foul smell.	Ill-health feeling.	Treatement using natural measures or forced treatement.	Rs.30000/-	Good environmental practices.	7.1.4
	*** For details please follow the discussions in the report.**						

ACKNOWLEDGEMENT:

SUNSHUBH RENEWABLES & RESEARCH CENTRE is pleased to express its sincere gratitude to the management of BVV Sangha's Basaveshwar Commerce College, Bagalkot, for entrusting SUNSHUBH RENEWABLES & RESEARCH CENTRE with the assignment on Green Earth practices based on Educate, Practice, Advocate & Manage the resources in their educational organization with the work order No:BCCB no.56/2020 dated 09/06/2020.

We acknowledge the assignment allocation sent by Email on 19th Oct 2019.

We also wish to thank Prof. Smt. S. H. Shettar, Principal, Environment Audit Co-Ordinator, Prof. M M Huddar, Head of criteria 7th, Dr. J. V. Chavan, IQAC cordinator, and Prof. V. V. Nandaragi, IQAC Secretary, who have been constantly following with the green aspects and developments in the college. It was on their instance that we got to evaluate the initiatives undertaken.
The officials and the maintenance staff for the help rendered during the energy flow study.
We would fail if we neglect to appreciate the sincere efforts put in by the Faculty and the Students who against all odds have kept the college premises clean to the possible limits.

Without the crucial and significant support from the fellow teaching team the potential Environment saving options and carbon footprint reduction would not be a reality.
With the motivational support of the management, ground realistic support from teaching team and sincere efforts of the students in incorporating the change (habits) and instructions, the college could effectively declare the reduction in Carbon footprint and optimize the waste reductions.

We are not in a position to compute the carbon footprint at this point of time as the basic information from each of the students is yet to be collected; however, **we will discuss the Carbon Foot print in the follow up compliance report.**

Wishing the team a great success, we deeply express our gratitude and heartfelt "THANKYOU" for allowing us to assess the energy flow scenario there by the ENERGY STATUS.

Mallikarjun A. Kambalyal. B.E.(E&C).
Certified Energy Auditors (EA-3485)
SUNSHUBH RENEWABLES & RESEARCH CENTRE

LIMITATIONS:

Our recommendations are in the interest of conservation of Electrical Energy and Green Culture i.e. the reduction in CARBON FOOTPRINT. The compliance to the recommendations will be subjected to meeting the safety and Environmental rules and guidelines.

AUTHENTICATION & DATE OF ENVIRONMENT AUDIT:

This Environment Audit has been carried out on 12th June 2020 under the instructions of Smt. S H Shettar, Principal, in the presence of Prof. M M Huddar, IQAC, Dr. J N Chavan, NAAC, and Mr. V V Nandaragi, IQAC Secretary.

LIST OF INSTRUMENTS:

During the process of the Audit, the following lists of instruments were (considered for) use (wherever applicable).

Sr No.	INSTRUMENT	MAKE	APPLICATION
1	Digital Power Analyser(PC Interfaced)	SCHIVAN ARNOX	Electrical Machinery.
2	Accessories -3000 Amps	ARNOX	Higher load UPTO 3000 Amps,
3	Accessories -200 Amps	ARNOX	UPTO 200 Amps,
4	Thermal Imager	FLIR	Identify loose contacts and bearing losses
5	Power Analyser (Manual)	MECO	Electrical Machinery.
6	Infrared Thermometer	METRAVI	Thermal (Fuel) Energy.
7	Digital (Contact) Temperature & Humidity Meter.	METRAVI	Electrical Machinery. (A/C's And Cooling Towers)
8	Digital Tachometer	METRAVI	Electrical Machinery.(A/C's And Cooling Towers)
9	Lux Meter	METRAVI	General & Task Lighting.
10	Sound Level Meter	METRAVI	Electrical Machinery. Generator Sound Proofing

Sr No.	INSTRUMENT	MAKE	APPLICATION
11	Digital Anemometer	METRAVI	Electrical Machinery.(A/C's And Cooling Towers)
12	Digital KW Meter	METRAVI	Electrical Machinery.
13	Digital Power Factor Meter	METRAVI	Electrical Machinery.
14	Lap Top Computer	HP	To Interface The Instruments For More Accurate - Sophisticated Readings In Sensitive Equipments.
15	Ultrasonic flow meter		Measure liquid flow.
16	Portable Vibration Meter.	METRAVI	Structural Stability
17	Live cable detector probe	-	Detect hidden cables for safety audit.
18	Power Analyser – EMM 5	Beluk	For remote communication and detailed audit.
19	Power Analyser – ELITE PRO	Beluk	Power Analyser.
20	PT's for Transformer audits.	KALPA	On field auditing of transformer loading and imbalance evaluation.

Only appropriate instruments were used wherever necessary.

ABOUT ENVIRONMENT AUDIT:

BVV Sangha's, Basaveshwar Commerce College, Bagalkot has asked SUNSHUBH RENEWABLES & RESEARCH CENTRE, Hubli., to conduct the Environment Audit for their Institution.

In this context, the management of the Institute represented by Smt. S H Shettar, Principal, entrusted us the task of conducting the feasibility study to reduce energy consumption and adopt green habits.

SUNSHUBH RENEWABLES & RESEARCH CENTRE represented by Mr. Mallikarjun A. Kambalyal made a detailed study and readings of various appliances were taken and carried out the Environment audit along with the safety parameters.

We hope the points presented will be self-explanatory, if there is need for any clarification, we are open for discussions.

ONGOING STATUS:

It's an optimistic & highly dedicated team effort lead by the Principal & the senior staff who have dedicated all their wits & free time to initiate Green Carpet the entire college premises. It is also a fact that there do exist, few short comings which however is unintentional & on being trained & educated the campus should look for continued minimized waste generation. With all due appreciation to the management, staff involved &cooperation by the students, we have made few suggestions which on implementation, will reduce, demand for water & electrical power. It will also reduce the existing level of pollution to bear minimum.

There is high potential among the students to be educated and spread the knowledge of going ZERO waste generation in their respective colonies and society they dwell in, contributing positively to the cause of

NO WASTE – NO POLLUTION – NO HEALTH HAZARD.

DISCUSSIONS ON EXECUTIVE SUMMARY:

Environment Audit.

Aerial View of the College Campus.

ENVIRONMENT AUDIT REPORT.

Placing of Batteries	**Category 7.1.2, 7.1.3 and 7.1.5**
BATTERY PLACEMENT: The batteries should be placed on an 1. insulated platform not touching any of the metal frames. 2. Need cross ventilation for favorable breathing. 3. Provision for periodical checking and maintenance should be made possible without major obstacles. In absence of the above placement conditions, 1. The batteries will discharge faster. 2. The charging time and current will increase as there is the return path for self discharge. A well maintained battery is known to serve for more than 7 years. The presence of oxidation marks at the point of contact should not develop over the time. We strongly advice for regenerating the batteries once every 3 to 4 years so that they serve over 15 years in liew of 5 years under present conditions. A well maintained battery will draw less charging power, ie saves on energy consumption, delivers more energy per charge thus resulting in better serviced life. For more information on battery	**Battery placed in a corner are deprived of breathing space.** **Batteries touching the wall or directly placing on the ground will dischanrge them much faster and reduces the backup time.**

Contact Sunshubh renewables & research centre, Hubli
ceo@sunshubhrenewables.com.

More images of wrong placement and use of Batteries.




Electrical Power Usage:

It is important to understand the significance of the Environment use implication. The use of electrical power has been observed to be unnecessary. The administration should initiate to keep all unwanted and unused appliances switched off.

It is observed that the lights are left switched ON at majority of places and thus causing financial losses to the management and energy loss to the country.

Solution:

It is therefore required to install Light Intensity Sensors in all the rooms.

Lighting improvements should be carried out by using T5/LED or The Induction Light systems in lieu of normal tube lights. If the finance department permits, it is advised to install 40W Induction lamps in all classrooms.

Sourse : Can be locally procured, However the load based selection is key aspect in its installation. To set the visibility, the intensisity of natural light is much stronger and hence LUX based setting doesn't work. Hence the technical supervision is key aspect. We suggest to allocate this to the Physics stream of students to understand the Commerce and application of technology.	**Light Intensity & Occupancy sensor** 

It is important to discuss some more on the below clipping. This was picked up from the College website.

Light Intensity Sensor requirement.

It may be seen that the Light is illuminated. However, the brightness on the students is seen to be coming from the sides. The shadow indicates natural light coming from the windows is brighter. Natural light is more predominant than the tube light. Hence tubelight being switched off has no adverse effect. However, it would save on the energy consumption and contribute to green practices.

NATURAL LIGHTING:	Category 7.1.1, 7.1.2, 7.1.3 and 7.1.5
It is found that the windows have not been blocked and also at some areas need to be maintained clean, if not it calls for switching on internal lights. If the windows are cleaned at regular intervals, it will help in increasing the illumination level in the room. Thus preventing switching on lights during day light. It is also important that in no room the stacking of either the material or the placement of rooms should be allowed.	 Cupboards blocking natural day light should be avoided at all places in the campus.

Projector placing.

It is observed that the projector & the screen are placed at a point near the door opening. And the door is kept open for use.

The damaging factors on the placement of these projectors in the present location are,

- The information intended to be desipated is not happening as the readability is not proper.

- Due to high contrast, the students and the audience are put to strain and finally the knowledge may not be digested.
- The students may end up feeling dull and may loose interest in the followup session.
- Movement of students before the projector screen calls for further disturbance and diverts the attention.

Solution :
Move the projector to the far end from the door.
Use opaque curtain if the sitting is in North-South orientation.
The projector screen should fall in line with human vision with head placed in normal position to avoid strain on the neck.
In case the class room sitting is in theatre style, the screen should be placed keeping the above factors in consideration.
Bright spots next to the projector screen should be blocked with dark curtains.

Remedial Measures:

Move the projector to the far end of the class room with dark curtains and placed at an angle suitable for comfort viewing for the first line students.

Windows:

Key observations and requirements on designing the windows.

Windows are necessary for natural lighting and for cross flow of air. However, In educational institutions, the point of concern is that, the distraction of attention.

It is seen that the windows are fitted with transparent glass. The glass should be translucent up to minimum of 4.5 feet. This is necessary to avoid distraction of attention of the students from external movements and happenings around.

The windows, if required to be kept open should be done keeping the distraction factor in view.

It has also been observed that the top part of the window, which is supposed to be the ventilator, has been permanently closed. It is necessary to open this part for indoor exhaust. In present situation, the warm air vented out by human breath gets trapped in the top layer and has no escape path.

As the room temperature rises, the ceiling fans, turned on, churns in the same warm air in the room creating feel of heaviness.

The college buildings is well engineered to allow the natural breeze to flow & maintain comfortable room temperature. However, it is barred by wrong design and placement of windows. Hence, we strongly advise to keep all the ventilators clean & open. If possible, work with wall mounted fans to act in line with natural theory of Science. **Well designed windows results into reduction of energy demand by 70%**	
Stacking of racks in front of the window, prevents natural illumination. This calls for forced lighting. The air vents are totally blocked and results into very poor air circulation. It is important to understand the impact of such conditions. Off late people have been complaining about dullness/weekness/ vagueness and similar sense of health condition. It is important to understand the basic cause. For all such situations, it is observed and is natural practice to go out for few minutes and start all over again. This is the situation commonly termed as SICK BUILDING SYNDROME. The effects of sick building	

syndrome are well discussed and the management should consider these aspects when utilizing the space. We strongly suggest to seek opinion of the subject expert and relay the stacking arrangement and sitting/reading/studying tables. In the present situations COVID 19 pandamic its very significant.	
Few illustrations and remedial measures. Open the top part of the high rise windows for natural ventilation.	
Newly made aluminum windows should be placed such that the opening is provided at the upper part and the lower portion with translucent panels.	

Observation in Library Reading room.

The reading room is well illuminated using T8 & T12 type tube lights. However, the following aspects are seen to be of high level of pollution.

Cutting of natural air circulation system has forced, keeping the fans in operation. However these fans are ceiling mounted and cause seviour gust of turbulent warm/hot air revolving within the reading room causing loss of ideal supply of Oxygen and humidity.

The blocking of the natural day light also calls for illuminating the electrical tube lights thus resulting into increased room temperature.

The table below, lists all the possible hazards and implications, the situation is termed as "Sick Building Syndrome" ie the SBS situation.

Panaromic view of the library reading room in completely closed doors, windows and ventilators leading to poor air quality and natural illumination.

The table below lists various aspects in detail and points leading to indoor air quality aspects and considerations.

RISK FACTORS OF SBS ie the SICK BUILDING SYNDROME					
Physical	**Chemical**	**Biological**	**Psychosocial**	**Personal**	**Others**
• Environmental parameters of thermal comfort. • Parameters related to building ventilation. • Noise vibrations. • Daylight. • Electromagnetic fields • Ions • Ergonomy • Universal design.	• Constructional and household products. • Formaldehyde • Phthalates • Manmade mineral fibres • Volatile organic compounds • Odours • Environmental tobacco smoke • Other indoor air pollutants	• Moulds • Bacteria • Microbes volatile organic compounds • Room dust	• Occupational stress • Social status • Loneliness, helplessness • Work organisation • Communication • Supervision	• Gender • Individual characteristics, • Health status	• Location, Geopatogenic zones building characterics • Building characteristics • Ownership • Presence of insects, rodents, use of desinsection, deratization, disinfection products.

Waste (Gray) Water management.

Although the institution does not generate any polluted water other than the forced excrete it is advised to use natural treatement method. The gray water generated out of maintaining clean campus may be treated with step wise treatment through CANNA INDIA (KAABALE) plant. If required a chemical dosage may also be considered for graywater treatement.

Water Hyacinth may also be considered for purification of the graywater. The benefits of adobting Water Hyacinth treatenent is reproduced in the subsequent discussions.

The Water-Hyacinth: A Cinderella of the Plant World

Its use in sewage effluents, as a trapper of salts and a water purifier

by G. C. Dymond, A.R.I.C.

Appendix B, "Soil Fertility and Sewage -- An account of Pioneer Work in South Africa in the Disposal of Town Wastes" by J.P.J. van Vuren, with a foreword by Lady Howard, 1949, Faber & Faber, London.

Dedicated To the first ten inches of soil.

Historical

The water-hyacinth (*Eichhornia crassipes*) is a true water plant and floats by means of spongy petioles. Of all the aquatic plants the water-hyacinth is the most prolific and spectacular. It was first introduced into the United States from Venezuela and exhibited at the New Orleans Cotton Exposition in 1884. Garden-lovers sought this botanical curiosity and set them in pools and ponds.

Very soon the plants escaped their garden bounds and infested the streams and bayous, with the result that for the past forty years many thousands of pounds have been spent in trying to keep in bounds this navigational nuisance.

The plant propagates itself from tiny root fragments, which break off from the large plants and quickly develop leaf stalks and broad green leaves. Runners also grow along the water surface from the base of the petioles, resulting in a rapid spread of vegetative reproduction.

Until very recently the literature had little good to say about this 'curse of the waterways'. Thus Evart, writing about the weeds of Victoria (*vide* Horticultural Abstracts II, 1941, p. 226), says: 'The water-hyacinth has been used as a manure, but is very bulky and rots quickly, so that it only has a slight and temporary value in adding humus to the soil.

In Bengal (News letter on Compost, Oct. 1945, p. 69. 221) farmers were persuaded to turn the water-hyacinth into a composted manure. Analysis of random samples of the compost showed a nitrogen percentage of 1.12 on a dry basis.

The potentialities of this plant were first fully recognized by Sir Albert Howard. In his recommendations to the Auckland Municipality he emphasized the necessity for the complete utilization of all city wastes. After describing the methods of screening the solids, and thereafter drying and composting with city wastes, he says: 'After the sludge is filtered off, the clear effluent will contain valuable plant food in solution. This can be trapped by the water-hyacinth. The clear sewage effluent, together with the storm water, should be led into some local stream, river or low-lying area, where the water-hyacinth can be cultivated as a crop, and the clear water (now deprived of most of its plant food) allowed to escape into the sea. On the banks of the areas producing this water-weed, composting centres should be set up and the weed systematically converted into humus, using as an activator a portion of the dried sewage sludge.

Howard thereupon asked me to carry out a chemical investigation into the matter. The prospects raised by him appeared so important that it was with the greatest interest that I complied -- with the following results. Some of this data was published in a paper presented by Howard to the Institute of Sewage Purification in London. (Institute of Sewage Purification, 20th Nov. 1946. Also *Municipal Engineering* of 7th and 14th February 1947.) Since then the Auckland Drainage League is pursuing the idea with keen interest. Inquiries also came from the city of Bradford, Yorkshire and plants were dispatched by air. As was anticipated, the plants did not survive the winter, but the work done by their staff was invaluable.

The Esholt Sewage Disposal Works is a highly efficient process first started in 1906. The capital cost amounts to £2,500,000, of which the land cost £240,000. The average dry-weather flow to the works is 18 million gallons a day, and serves an area of 25,522 acres and a population of 262,500 persons.

The report of their sewage works engineer and manager, W. H. Hellier, and their sewage research chemist, is a valuable contribution to the subject. In brief, they state that 'true floating plants such as

Azolla (*A. filiculoides*) a water fern
Duckweed (species of *Lemna*)
Water-Hyacinth (*Eichhornia crassipes*)

are preferable to plant types which root in the sides or bottom of a pond or lake, as they impede the necessary process of cleaning the lake bottom, a collection of humus sludge round the roots and stems might give rise to septic conditions detrimental to the lake effluent, and that such crops would be more difficult to harvest than true floating plants.

The first two were found unsuitable, but the water-hyacinth, during summer, showed a rapid vegetative growth -- twenty square yards from a dozen plants in two months. It was found to tolerate a low pH of 6.5. It is easy to harvest and rots easily. It is capable of absorbing salts in proportion to their presence in the water in which it grows.

It does not tolerate intense cold, acidity, stagnation nor sea water.

Composition

Like seaweed, river grasses, watercresses, etc., the water-hyacinth has a very high water content, ranging from 93 to 95 per cent. Its composition varies considerably with the media in which it grows. When there is a scarcity of fertilizer elements the plant becomes diminutive, but with plenty of food the growth becomes luxurious, with a deep greenish-blue colour.

The following analyses show such extremes. The first plants were taken from a garden pool deficient in plant food, and the second from a slow-running river in which salts would tend to accumulate (Enseleni River and lakes, Zululand.)

	Water Content %	Dry Matter %	Nitrogen% Dry Substance	Ash % Dry Substance
No. 1	93.0	7.0	1.33	23.17
No. 2	93.4	6.6	2.01	23.90

The analysis of the ash showed the following:

	1	2		1	2
Total Silica	58.02	39.40	Magnesia	2.20	5.61
Chlorine	3.55	9.23	Phosphoric Oxide	0.86	4.00
Iron and Alumina	19.35	17.00	Potash	4.81	11.20
Sulphates	2.40	2.57	Undetermined	2.06	2.49
Lime	6.75	8.50			

In order to check this condition and to find out how soon the water-hyacinth would take to absorb additional fertile elements added to a media deficient in them, water from a fast-flowing stream was taken and divided into two large receptacles.

No. 1 was control and in No. 2 the following water culture added:

Grams of salts per litre:
KNO_3 - 0.25 gms.
H_2KPO_4 - 0.25 gms.
$MgSO_4$ - 0.25 gms.
$FePO_4$ - 0.25 gms.
$Ca(NO_3)_2$ - 1.00 gms.

The period of growth was two weeks, and the following illustrates the rapidity with which the plants will absorb additional salts.

Analysis

	Water Content %	Dry Matter %	Nitrogen % Dry Substance	Ash % Dry Substance
No. 1	94.1	5.9	1.42	34.00
No. 2	95.5	4.5	2.23	29.30

The analysis of the ash was as follows:

	1	2		1	2
Total Silica	44.74	23.92	Magnesia	4.64	5.06
Chlorine	6.04	9.58	Phosphoric Oxide	2.00	8.00
Iron and Alumina	23.00	30.40	Potash	7.36	11.62
Sulphates	2.46	2.81	Undetermined	2.96	0.61
Lime	6.80	8.00			

Thus, in the short period of two weeks the nitrogen rose from 1.42 per cent to 2.23 per cent; the silica by replacement dropped from 44.2 per cent to 23.6 per cent; the phosphoric oxide rose from 2.0 per cent to 8.0 per cent, and the potash from 7.36 per cent to 11.62 per cent.

A more detailed experiment was then conducted, which showed that nitrogen and phosphoric oxide were absorbed, whenever present, but not potash. Our preliminary analysis showed that the water-hyacinth absorbs nitrogen and phosphoric acid very rapidly. Further experiments determined more accurately the time and extent of absorbability. There appears to be a rapid curve of absorption for seven days, after which a state of equilibrium between growth and absorption is attained. It is apparent that 1 acre would absorb about 2.35 tons of ammonium sulphite in one hour. Experiments leading to the above conclusions were made with a 0.25 per cent solution of ammonium sulphate. Further experiments were carried out on a weak solution of urine. Qualitative experiments showed that, provided a certain minimum of nitrogen content was maintained, maximum absorption, with clarity and absence of smell, was obtained. They also demonstrated that, provided a certain surplus of plants and fresh growth is maintained over and above the urine supply, clarification takes place, and all available nitrogen is absorbed.

The beautiful structures planed by the administrators and built by the management clearly indicate that they are concerned about the environment and are committed to deliver good sense of civic discipline and knowingly or unknowingly are exhaling the process of heading towards **ZERO CARBON FOOTPRINT.**

When the infrastructure is in place, the staff are inclined to perform there is nothing that can stop from achieving the required. What is required is the orientation and awareness sessions on the right use.

The designated staff be trained in understanding the needs and allowed to test their innovative skills to move towards Green practices will accelerate the process of green revolution.

EXHIBIT GREEN HABITS:

The college administration, should engage its resources in exhibiting Green Habits as discussed.

ACTION PLAN SUMMARY:

- Earmark the action plan.
- Invite subject experts for Tech-talks,
- Organize in person panel discussions and interaction to propagate the knowledge and mitigate the problems in practicing the same.
- Prioritize the initiatives and execute.
- Observe the benefits and shortcomings.
- Workout further improvement by involving the staff and students.

MODE OF ACTION:

- The process of ENVIRONMENT AUDIT & ENERGY CONSERVATION should be carried out in three steps.
- Good housekeeping practices using available manpower.
- Minor alterations using in house work culture with minimum investments on accessories as discussed.
- Capital investments, which may be required for installation of new methodologies may be taken up on phased manner.

We will be happy to assist you for any further advice/consultancy if required either on Rainwater management or on any of the measures discussed in the report.

We hope the measures are implemented in good spirit and to human convenience and comfort.

For SUNSHUBH RENEWABLES & RESEARCH CENTRE

Mallikarjun A. Kambalyal. B.E. (E&C)
Certified Energy Auditors EA-3485

Note Sheet:

Note Sheet:

Note Sheet:

NTLR

B.V.V.Sangha's
Basaveshwar Commerce College, Bagalkot

Environmental Audit Report 1-8-2022 to 31-8-2023

Report Generated by NICHROME TESTING
Laboratory and Research Pvt Limited. Dharwad

Email:nicechem@gmail.com

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INTRODUCTION:

Green audit is a valuable means for a college to determine how and where they are using the most energy or water or other resources; the college can then consider how to implement changes and make savings.

Green Audit is a process of systematic identification, quantification, recording, reporting and analysis of components of environmental diversity of institute. It aims to analyse environmental practices within and outside of the concerned place, which will have an impact on the eco-friendly atmosphere. It can create health consciousness and promote environmental awareness. It provides staff and students better understanding of Green impact on campus.

Hence its important that the college evaluate its own contributions toward a sustainable future. As environmental sustainability is becoming an increasingly important issue for the nation and the role of higher educational institutions vis a vis environmental sustainability is more prevalent.

The National Assessment and Accreditation Council, New Delhi (NAAC) has made it mandatory that all Higher Educational Institutions should submit an annual Green Audit Report. Moreover, it is part of Corporate Social Responsibility of the Higher Educational Institutions to ensure that they contribute towards the reduction of global warming through carbon footprint reduction measures.

PREAMBLE:

The policy statement for abatement of pollution (1992) and the subsequent Environment Protection Act 1986 announced by the Government of India seeks integration of environmental considerations into decision making at all levels. Environmental Audit has been recognized as one of the instruments for achieving this objective.

An Environmental statement is an objective assessment, of the extent of compliance of a company with applicable Environmental laws and regulations. It is based upon a review of pertinent records and technical data. The Environmental statement achieves following purposes,

1. Assuring compliance with various Governmental regulations,
2. Reduces environmental risks and liabilities,
3. Cost savings or increasing the efficiency of operations,
4. Indentifies environmental liabilities, if any.

Accordingly, the survey was carried out to review the operations, to collect relevant data like materials consumption, water consumption, waste generated and the pollution prevention method practiced by the Organisation etc. Further improvement plans of the Organisation during the financial year were also noted.

OBJECTIVES

The environmental audit helps in pollution abatement, safety, health and conservation of natural resources focusing attention on areas of concern, practices that need to be changed and plans to deal with adverse effects. The audits would also facilitate the promotion of environmental awareness by companies by framing of proper environmental policies and effective management systems to implement them to achieve sustainable development.

The objectives of an environmental audit in an Organisation can be summarized as follows

1. To determine the consumption of various materials used and the performance of various operations so as to identify usage of materials in excess than required.
2. To identify the areas of water usage and wastewater generation and to determine the characteristics Of wastewater generated and its impact on the environment
3. To identify the areas generating Air pollution, To determine the emission, the sources, quantities and characteristics.
4. To determine the solid wastes, Hazardous wastes generated, Battery Waste, Plastic Waste, etc their sources, quantities and characteristics. and its impact on environment.
5. To identify the possibility of waste minimization, recovery and re-cycling of wastes.
6. To determine the performance of the exiting waste treatment/ control system so as to modify or install additional or alternative control equipment accordingly.

METHODOLOGY:

The purpose of the green audit is to ensure that the practices followed in the campus are in accordance with the Green Policy of the country. The methodology includes: collection of data, physical inspection of the campus, observation and review of the documentation and data analysis.

BRIEF INTRODUCTION OF ORGANISATION:

The Basaveshwar Commerce College, Bagalkot is one of the prestigious institute of Basaveshwar Veerashaiva Vidyavardhaka Sangha, Bagalkot which was founded by His Holiness Shri Gurubasava Mahaswamiji of Bilur in the year 1906, with the opening of a Sanskrit Patashala.
It provided the impetus that propelled a sleepy little town into an Educational, Commercial and Industrial hub of this backward area of Karnataka state.

Main Campus

Aerial View of the College Campus.

BASAVESHWAR COMMERCE COLLEGE

The Basaveshwar Commerce College is part of B.V.V.Sangha, which was established in 1970 with 50 students. The college has become predominant in the field of commerce and management education within a span of five decades. Basaveshwar Commerce College is the only independent commerce college in Bagalkot district. At present, nearly 1800 students are studying at the College. The college is offering various courses such as B.Com, B.B.A, M.Com and CA foundation coarse. The college has committed and dedicated faculty by large, it is committed for academic excellence and all-round development of the students.

The Alumni of college are serving at their various capacities around the world. Some of them are leading chartered accountants, judicial officers, people's representatives, government officers, and entrepreneurs. In total Basaveshwar Commerce College is one of the outstanding colleges in Karnataka.

Bagalkot, is a city in the state of Karnataka, India, which is also the headquarters of Bagalkot district. It is situated on branch of River Ghataprabha about 481 km (299 mi) northwest of state capital Bangalore, 410 km (255 mi) southwest of Hyderabad, and about 570 km (354 mi) southeast of Mumbai. The population of the urban agglomeration was 111,933 according to the provisional results of 2011 national census of India, and the city is spread over an area of 49.06 square kilometres (18.94 sq mi)[2] with an average elevation of 532 m (1,745 ft) above MSL.

Our Vision

Imparting Excellent Education and Training in Commerce and Business Administration, thereby earning a unique Distinction as Top-notch Commerce Institution in North Karnataka

Our Mission

Basaveshwar Commerce College was established in 1970 with a great mission of imparting professional education in commerce, Business Administration & Management at U.G & P.G. Levels.

The Broad Goal of the college is to respond to the ever-changing needs & expectation of Business Environment and Demands of the community by molding students into accountable citizens, developing a sense of Dedication, Social Conscience and Commitment.

Objectives of organisation

To bring out graduates of excellence, complete character and integrity to venture into right vocations, professions and entrepreneurship.
To harness the students potential through coordinated efforts and personal attention.

CORE VALUE

- Critical thinking and problem solving.
- Leadership.
- Encouraging and building student ability, character and creativity.
- Ethics: We believe in acting with honesty, courage, and trustworthiness.
- We value an institutional attitude and culture that promotes and supports total health and wellness of staff and students.
- Excellence: Maintain a high standard of integrity and performance leading to the achievement of academic and professional goals.

ENVIRONMENT PLEDGE

We, The Principal, staff and students, adopt responsible practices in our days energy use with due regard to the environment. We pledge to avoid using electrical power where not needed. We also pledge to use judiciously the electrical power by using Energy efficient products.
We shall practice to switch off all appliances when not in use.

PURPOSE:
To realistically and comprehensively reduce energy consumption, assure acceptable indoor air quality, and improve energy efficiency on campus through methods that are consistent with a safe, secure, and inviting campus community. As outlined in this policy, Environment conservation will be accomplished by developing a proactive and progressive approach to providing energy efficient, responsible, and cost effective operations on campus. This policy will be reviewed and updated periodically as public awareness, management techniques, and technologies change.

APPLIES TO: Faculty, staff, students, and visitors.

CAMPUS: BVV Sangha's Basaveshwar Commerce College, Bagalkot.
We pledge to speak in open forums for the energy conservation first, Energy Efficiency next and eliminating of High Energy use appliances for better or low energy use one's.
We commit ourselves to the safe operation of all our needs, be it in classrooms, library, canteen, on road, off road, in-campus out-campus as well as at our place of stay.
We adhere to reduce environmental load by efficiently using resources, saving energy, reducing waste, encouraging material recycle, with special emphasize to minimising emissions of greenhouse gases, ozone depleting substance and particle matter. we endure to minimise environmental loads and adopt environmentally friendly technologies when ordering and purchasing necessary products and resources.

We endure to attend educational programs and promulgate our close friends and colleagues to follow suite.

We endure to ensure that we recognize the essence of this Energy use policy by actively and aggressively conducting workshops and training to all in environmental concepts.
We make wide ranging social contribution to close association with the students, teaching staff, administrative staff, housekeeping staff by disclosing Energy use (Star rating appliances) information and supporting minimized consumption of Energy.

ENVIRONMENT, OCCUPATIONAL HEALTH AND SAFETY POLICY

BVV SANGH'S COMMERCE COLLEGE, BAGALKOT in its continual improvement shall be achieving Environmental, Occupational, health, and safety management system by

1. Providing good working condition and healthier environment to all employees
2. Optimum usage of natural resources by reducing, recycling and re using Prevention of pollution by minimizing waste generation and proper disposal of waste generated by all activities
3. Prevention of health and injuries by adopting safe working practices in all operations Comply with all applicable environmental requirements

Basic Activity : Education Activity : Commerce College with B.Com Facility.

Faculty : 58 Number of Students :1650

LAND USE DATA

CATEGORIES OF LAND USE	AREA (m^2)
PLANTATION AREA	965 m^2
BUILT UP AREA (INCLUDE ROADS)	1350 m^2
TOTAL AREA	2315 m^2

WATER AND RAW MATERIAL CONSUMPTION AND DISCHARGE

1. Water Consumption – 77,000 Lit /day

2. Raw Material Consumption -

Name of raw material		During current season
a	Papers for office use	35 bundles of 500 A4 size per year
b	News paper	5 news papers per day(Kannada& English)
c	Dry leaves from plants	½ ton per month

3. Pollution discharged to the Environment- 61,600 Lit/day

4. HAZARDOUS WASTES -

[As specified under Hazardous waste (Management & Handling) &Trans Boundary Movement Rules – 2003]

Hazardous Waste	Total quantity
	During current financial year 2022-2023
Used Oil From DG sets & compressors	2KL/Annum
Any other (Specify)	

SOLID WASTE MANAGEMENT

Objectives of the Program:

The main objective of the solid waste management system in the campus is to promote the Conservation and environment management in the Institute Campus. The purpose of the current Available system is:

To introduce and aware students to real concerns of environment and its sustainability.
To secure the environment and cut down the threats posed to human health by analyzing the pattern and extent of resource use on the campus.

Description of the Program

To achieve effective and sustainable implementation of the proper waste management practices, Awareness with participation is the key to be involved in the Solid and Liquid Waste Management Program of an institution. Some of the common solid wastes obtained include daily Garbage which includes used papers, card sheets, rubber waste, and plastics, cardboard Materials, etc are collected and disposed off. Dustbins are located on various floors at various Locations such as classrooms, libraries, staffroom, administration offices, etc. This separated waste is then Collected by the Municipality garbage collecting van outside the Institute campus. This waste is recycled by the Municipality. Liquid and semi solid wastes mainly consist of wastewaterfrom staff pantry etc. are disposed off through sewage systems having a network of undergroundpipes by Bagalkot Municipal Corporation.

WASTE DISPOSAL:

Waste disposal are the activities and actions required to manage waste from its inception to its final disposal. This includes the collection, transport, treatment and disposal of waste, together with monitoring and regulation of the waste management process.

The waste from all around the college is separated daily as wet and dry waste in different bags which are disposed separately. Dry waste includes paper, cardboard, glass tin cans etc. on the other hand; wet waste refers to organic waste such as vegetable pads, left-over food etc. Separation of waste is essential as the amount of waste being generated today causes immense problem. The material was composted and evaluated as a fertilizing material. Disposal of these waste results in the production of good quality organic manure that can be used as soil amendments and source of plant nutrients.

By reusing or recycling we are contributing to the conservation of natural resources, saving energy, helping to protect the environment, reducing landfill. We will also reduce our impact on the environment by minimizing the carbon emissions associated with both disposing of old products and obtaining new ones. Our Organisation adopts environment friendly practices and takes necessary actions such as energy conservation, waste recycling, trying to be carbon neutral etc. The biological reusable waste are processed as organic manure for the plants available in the college campus and the other solid waste generated in the college campus is disposed to vendors and wherever required pollution control approved vendors

Solid Waste Management systems

Waste Disposal Bins

Organic Waste Management

Green Cover:

Our Organisation is within the geo-position between latitude 16.1834077 N and longitude 75.7046074 E in Northern Karnataka, India. It encompasses an area of about 2315 Sq.m. The area is immensely diverse with a variety of tree species performing a variety of functions. Most of these tree species are planted in different periods of time through various plantation programmes organised by the authority and have become an integral part of the college. The trees of the college have increased the quality of life, not only the college fraternity but also the people around of the college in terms of contributing to our environment by providing oxygen, improving air quality, climate amelioration, conservation of water, preserving soil, and supporting wildlife, controlling climate by moderating the effects of the sun, rain and wind. Leaves absorb and filter the sun's radiant energy, keeping things cool in summer. Many species of birds are dependent on these trees mainly for food and shelter.

Different species display a seemingly endless variety of shapes, forms, texture and vibrant colours. Even individual trees vary their appearance throughout the course of the year as the seasons change. The strength, long lifespan and regal stature of trees give them a monument – like quality. A thick belt of large shady trees in the periphery of the college have found to be bringing down noise and cut down dust and storms.

It has got extreme climates. The highest temperature is recorded 420 C just prior to the onset of monsoon (around May- early June). Summer rain is normal, and is principally caused from late June to August The climatic condition is suitable for a wide variedly of flora and fauna to support its rich biodiversity.

The city has an average altitude of 808 feet or 246 meters from the average sea level. The climatic conditions bear a strong resemblance with the other cities in the northern part of Karnataka, India. The summers are usually very hot and the winters are cold. The summers are prevalent during the months of February to May and cold season between November to January. There is onset of Monsoon in May end and continues to September.

Ambient Air Quality Monitoring Data

Sl.No	Parameters	Results
01	Respirable suspended particulate matter (PM_{10}) µg/m3	52.4
02	$PM_{2.5}$ µg/m3	36.1
03	Sulphur di oxide µg/m3	4.1
04	Oxides Of Nitrogen µg/m3	6.4

Waste Water Treatment Plant

According to the number of toilets in the college, suitable size of septic tank with soak away is available. A sewage treatment plant is proposed in future.

The institutional initiatives for greening the campus are as follows:

1. Restricted entry of automobiles
2. Use of Bicycles/ Battery powered vehicles
3. Ban on use of Plastic
4. landscaping with trees and plants

Use of bicycles by the students to save energy

CELEBRATION OF WORLD ENVIRONMENT DAY by NSS ON 05-06-21

NSS Volunteers creative work on No Tobacco Day dated 31-05-2021

OBSERVATIONS

Observations are as follows

1. **Proper Water Balance needs to be continuously followed up to know the wastage of water and hence actions to be taken for reduction of wastage of water.**
2. **Waste water treatment plant (Sewage Treatment Plant) needs to be set up with modern technology for least energy consumption and reuse of the treated water in garden thereby reducing water consumption. Presently Septic Tank and Soak pit is the norm which should be discontinued and recycling of water to be introduced. This will reduce pressure on the ground water and can also develop the garden further.**
3. **More detailed study of Tree cover both Flora and Founa needs to be done.**

4. **Additional tree plantation needs to be done which will increase Flora Founa and Oxygen hence redusing Carbon Foot Print.**
5. **Metalling of some of the roads need to be done for Air pollution which may occur especially during winter season.**
6. **Tree plantation be made a yearly event and type of plants be selected accordingly with the help of your Botany department**
7. **Vehicle usage may be reduced in the campus which will reduction in CO2 emissions. Similarly pooling of members for vehicle usage will also reduce CO2 emissions.**
8. **Waste management be prioritised. Plastics be sold to plastic dealers and revenue generated. Similarly Paper be sold to paper factories, Waste oil from DG, Glass (if any), etc be sold and revenue generated.**
9. **Signage's be put across the whole of campus (Safety, Environment, Botanical names, etc)**
10. **Next Audit, Carbon Foot print to be included and reduction of Carbon Foot Print to become a goal of the Organisation**

ACTION PLAN SUMMARY:

- Make an action plan both short term and long term.
- Execute plan as pe schedule. Invite subject experts if required,
- Organize in person panel discussions and interaction to propagate the knowledge of energy conservation and mitigation.
- Prioritize the initiatives and execute.
- Observe and record the benefits and shortcomings.
- Workout further improvement by involving the staff and students.

AUDITED TEAM AND THEIR CREDENTIALS

DR KRISHNA N KULKARNI BE(Chem), MTech (Chem), PhD (Geology)

Environmental Expert

In the Environmental Field for the last 25 years having completed many Audits of Colleges, Industries and their compliances as per Ministry of Environment, Forests and Climate Change, New Delhi. Also an expert in Design, Execution and Operations of Waste Water Treatment Plants

Shri Ramesh Upadhye B.Tech(Electrical Power)

Electrical Expert

Former employee at POWERGRID (Central Government) and been in the field of Academics and Electrical Audits. Experience of more than 35 years

Shri Shrikantha Joshi BE(Civil)

Civil Engineering Expert

Expert on design of Buildings, Audits in Civil engineering area. Experience of more than 25 years

Shri Kallappa Udhoji

Bachelor in Science (Chemistry)

Formerly QA / QC Head - Lab Division, ADM Oil Industries. Analytical Expert and Incharge of Nichrome Testing Laboratory and Research Pvt Ltd Lab Section. Experence of more than 30 years

Organisation : M/s Nichrome Testing Laboratory and Research Private Limited

Address : 170, 2nd Main Road, Narayanpur, Dharwad - 580008. Email : nicechem@gmail.com

Recognitions and Certifications :

- **NABL Accredited,**
- **MoEF & CC / CPCB Recognised,**
- **ISO 9001 : 2015**
- **ISO 45001 : 2018 Certified**
  (Certificates Enclosed)

GREEN AUDIT REPORT

FOR

BVV Sangha's, Basaveshwar Commerce College, Bagalkot.

BASED ON POSSIBLE BEST PRACTICES.

EDUCATE, PRACTICE, ADVOCATE and MANAGE.

EXECUTIVE SUMMURY.

Sr No	Obse rvation*	Problems*	Resulting losses*	Remedial measures*	Capital*	Projected savings*	Category 7
1	Rainwater Manageme nt	No serious water problem seen but anticipate d.	Need quality water for social existence.	Structured approach to retain the rainwater within the campus.	Yes, Capital intensive	Improved quality of water and high yield. Calls for reduced pumping hours and eliminate or reduce need for water conditioners.	7.1.4
2	Surface water	Runoff to drain	Wastage of precious pure water	Divert to specified point near to borewell.	Rs. 50000/-		7.1.4
3	Water managem ent	Flooding bottle watering					7.1.4
4	Solid Waste Managem ent	Spillage of waste	Dirty used packages in and around the college	Awareness to place the waste in right place.	Already in place, however, needs to be refined.	Reduced cleaning hours and good hygienic conditions.	7.1.3

Sr No	Obse rvation*	Problems*	Resulting losses*	Remedial measures*	Capital*	Projected savings*	Category 7
5	Paperless data records	Eliminates filing and physical contact of documents. Facilitates the online communication and authentication to address the ongoing communicable health hazards and infection.					
6	Personal Health	Used Sanitary pads dispensing unit is not in place.	Open area disposal	Incinerator to be placed at convenient point and proper training is given to the students to make use of it.	Nil	Clean and safe health.	7.1.3
7	Used Battery disposal	Proposed to regenerate the used batteries	Increased use of batteries	Procure Battery regeneration system	Rs.18.00 Lacs	Extended life of bateries by three times.	7.1.3
8	Work culture	To follow the recommendations in the Energy audit and Environment audit report and implement the recommendations in its daily activities by all the occupants of the campus.					
9	Cumutation and safe distancing	Parking	High energy consumers	Educate and practice	Nil	N/a	

Sr No	Obse rvation*	Problems*	Resulting losses*	Remedial measures*	Capital*	Projected savings*	Category 7
10	Natural Lighting	Un cleaned windows and ventilators, forced switching on of tube lights	High energy bills	Clean the windowpanes and allow maximum natural light penetration.	Nil, part of routine, In house manpower.	Substantial cost of energy bills on lighting.	7.1.2 7.1.6
11	Natural Ventilation	Permanent ly closed ventilators.	Creation of hot air pockets below the ceiling.	Open the Ventilators for easy exit of hot/warm air from the rooms.	Nil, In house manpower.	Eliminates use of Electrical Fans and Substantial cost of energy bills	7.1.2 7.1.6
	*** For details please follow the discussions in the report.**						

GREEN AUDIT COMPLETION CERTIFICATE

I, Mallikarjun A. Kambalyal endorse and confirm that this report is generated based on the site visits and evidence collected from the site.

All attempts have been made to evaluate the scope for development and inculcate green practices in the campus and extended through out the campus. The focus is also laid to make positive impact on the society for a better living.

I also confirm and sign this certificate, In case the institution needs demonstration, my team of professionals shall be happy to do so.

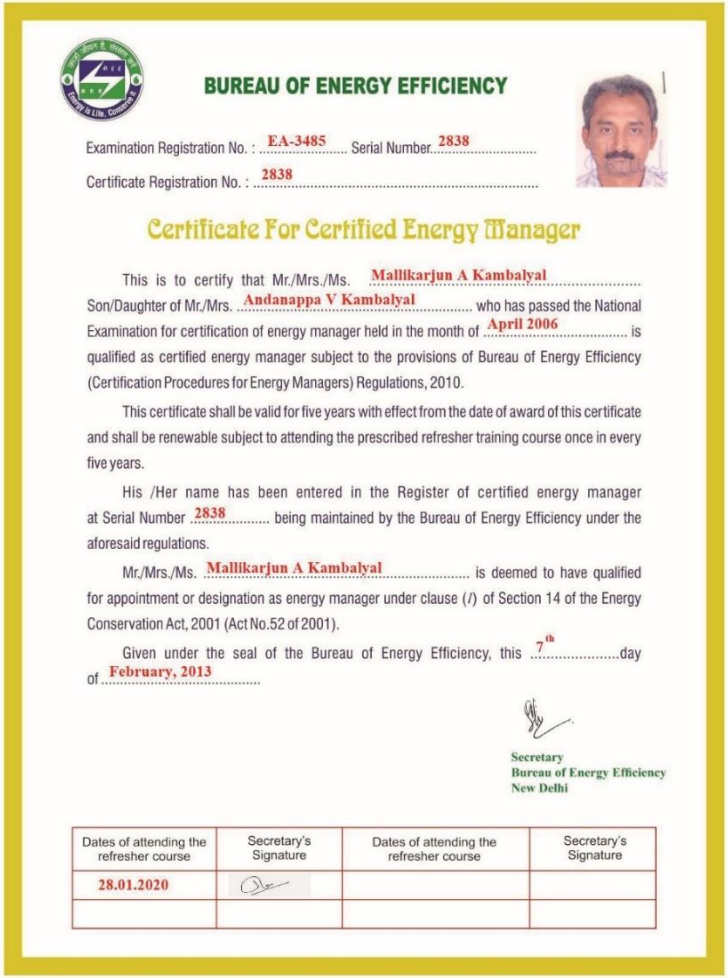
We present this report to fulfill the citizens moral responsibilities much more than the legal or mandatory compliances. This report is tabled in two parts. The first forms the core discussions which are general in nature. The second section is subject specific under the statutory requirements of the NAAC accreditation norms. They are Audit reports on, Green aspects, Energy aspects, Environment aspects, Health aspects and the discussions on net CARBON FOOTPRINT & the CARBON HANDPRINT initiatives.

shall be common for all the three se

Any modifications, changes, omissions after the site visit shall be exclusive.

Authorised Auditor.
Mallikarjun A. Kambalyal B.E (E&C)
Certified Energy Auditors EA-3485& ISO 50001:2011 & ISO14001:2015 Lead Auditor.

Credentials attached
7.1.6



BUREAU OF ENERGY EFFICIENCY

Examination Registration No. : EA-3485 Serial Number 2838

Certificate Registration No. : 2838

Certificate For Certified Energy Manager

This is to certify that Mr./Mrs./Ms. Mallikarjun A Kambalyal Son/Daughter of Mr./Mrs. Andanappa V Kambalyal who has passed the National Examination for certification of energy manager held in the month of April 2006 is qualified as certified energy manager subject to the provisions of Bureau of Energy Efficiency (Certification Procedures for Energy Managers) Regulations, 2010.

This certificate shall be valid for five years with effect from the date of award of this certificate and shall be renewable subject to attending the prescribed refresher training course once in every five years.

His /Her name has been entered in the Register of certified energy manager at Serial Number 2838 being maintained by the Bureau of Energy Efficiency under the aforesaid regulations.

Mr./Mrs./Ms. Mallikarjun A Kambalyal is deemed to have qualified for appointment or designation as energy manager under clause (*l*) of Section 14 of the Energy Conservation Act, 2001 (Act No.52 of 2001).

Given under the seal of the Bureau of Energy Efficiency, this 7th day of February, 2013

Secretary
Bureau of Energy Efficiency
New Delhi

Dates of attending the refresher course	Secretary's Signature	Dates of attending the refresher course	Secretary's Signature
28.01.2020			

Certificate of Successful Completion

Intertek

This is to Certify that

MALLIKARJUN A KAMBALYAL

has successfully completed the

Intertek

CQI & IRCA Certified ISO 14001:2015
Auditor Conversion Training Course

The Course includes the assessment and evaluation of Environmental Management Systems to conform to the requirements of ISO 14001:2015 and ISO 19011:2011

This course is certified by the Chartered Quality Institute (CQI) and the International Register of Certificated Auditors (IRCA)
– IRCA REFERENCE 18093 –

The course meets the training requirements for individuals seeking certification under the IRCA Auditor Certification Schemes

CQI | IRCA
APPROVED TRAINING PARTNER

Authorising Signature:

Course Dates: 14th – 16th July 2017 *Certificate Number: 47730*

Membership Application To Be Made Within 3 Years From Last Day of Course

121807

Bureau of energy Efficiency Egd No: EA3485 **ISO Certified Lead Auditor. Certificate No: 47730**

bsi.

By Royal Charter

BSI Training Academy

This is to certify that

Mallikarjun A. Kambalyal

has attended and passed

Energy Management Systems (ENMS) Auditor/Lead Auditor Training Course
(ISO 50001:2011)

Premanand Ramakrishnan, Director of Training

Date: 14/04/2016 - 18/04/2016
Certificate Number: ENR-00253448

This certificate is valid for 3 years from the date above for the purpose of registering as an auditor with IRCA.

Course number A17583 certified by IRCA

...making excellence a habit.™

The British Standards Institution is incorporated by Royal Charter
BSI India, The Mira Corporate Suites (A-2), Plot 1 & 2 Ishwar Nagar Mathura Road, New Delhi 110065, India Tel: +91 11 2692 9000

ISO Certified Lead Auditor. Certificate No: ENR-00253448

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Audit objectives.

Know

- Why?
- Where?,
- What?,
- When?,
- How?,

about this Audit and the objectives .....

Green Audit was initiated in the beginning of 1970's, with the motive of inspecting the work executed within an organization, whose exercises could cause risk to the health of inhabitants and the environment. It exposes the genuineness of the proclamation made by the organisation with the concern on health issues. As a consequence of their operations with respect to environmental pollution it is the duty of the organisation to carry out the green audit of the ongoing processes for various reasons, such as,

- To make sure whether one is performing in accordance with the relevant rules and regulations,
- To improve the procedures and aptness of material in use,
- To analyse the potential duties and to determine a way which can lower the cost and to the revenue.

Through green audit one gets adoration as to how to improve the condition of the environment. There are various factors that were forced upon and determine the growth of/or conduct of green audit. Incidents like,

- Decades old Bhopal gas tragedy, that has left its residual effect which still haunts us.
- Our buildings catching fire due to various reasons,
- Industries blowing off taking valuable human lives etc
- People going sick, feeling tired, after long hours of operations in the organization,
- Increased demand of generators due to inconsistent power supply, which

has resulted or lead into recent floods and droughts,

are some of the situations to ponder about.

To address various issues in context with human health, green audit is assigned to "Criteria 7" of NAAC (National assessment and accreditation council) accreditation. NAAC is a self-governing organization in India that declares the institutions as Grade "A", Grade "A+", Grade "A++"..., according to the scores assigurface ned at the time of accreditation.

The other intention of organising green audit is to update the environment conditions in and around the institutions ie., within the compound and outside the compound. It is carried out with the aid of performing certain tasks like waste management, energy consumed, diesel burnt it performing the objective of the organization. Lastly to self-assess the net carbon footprint of the conduct of process in the organization.

The goals of green audit

- The purpose of carrying out green audit is to make the campus user friendly meeting the needs of the specially abled and skilled persons maneuverability easier.
- Securing the environment and cut down the threat posed to human health.
- To Make sure that rules and regulations are complied with.
- To avoid the environmental interruptions that are more difficult to handle and their corrections call for high cost.
- To suggest the best protocol for adding to sustainable development.
- To execute the process of the organisation utilising minimum natural resources and efficient use of those resources contributing to minimum waste

generation.

How is is the green audit conducted

Pre-audit

- Planning
- selecting the team of auditors both internal and external
- schedule the audit facility
- acquire the background information
- visit areas under audit

On site conditions:

- Understand the scope of audit
- Analyse the strengths and weaknesses of the internal controls
- Conduct audit with end user comfort focused and making it easy to perform.
- Collect necessary evidence so that the stakeholders stand to understand how and where they are going wrong in the process of their conduct.
- Post audit draw the report based on the data collected.
- On confirmation of the preliminary report, draw a final report of the observations and inference with accuracy more near to implementable way.
- Discuss various remedial measures for alternatives if required.
- Prepare an action plan to overcome the shortcomings with continual observation on the action plan initiated.

Steps under green audit

Water audit: Water is one of the cheapest commodity next to the Air we breathe. Although we Indians, use less water in comparison to western countries. However, the extent of pollutants that we leave behind has polluted all the resources

including the deep well.

Rainwater harvesting is one of the best techniques that can be adopted by harvesting the rainwater and using it at the time of scarcity. the audit team to observe and investigate the relevant methods that can be adopted and implemented and draw the balance of use of water.

Waste management audit: The point of generation of waste, the type of waste generated, ie hazardous, recyclable and organically compostable wastes and segregating method at the point of generation for easy and best way to handle the same. Evaluating such methods to minimise the use of resources in the process of their management.

Energy audit: It deals with use of energy in the conduct of the process. The priority is topmost for conservation over efficiency, hence, energy auditor should always consider not to use the energy if necessary. At best it can be used judiciously.

Environmental quality audit: It analyses air quality, noise level and the programs undertaken by the institution for plantation creating awareness of trees around us and how nature provides us with remedial measures within its framework.

Health audit: In the process of use of resourses and conduct of the activities, they can develop impact on human health, that might be off minutely harmful, cause permanent disorder or may even cause death. Occupational health hazards are discussed in detail and the stakeholders are informed of the same and required necessary remedial measures indicated.

Renewable energy: To make in organisation net zero net zero carbon emission use of renewable resources including energy such as solar wind biogas geothermal

energies are put into ooh utilisation.

Carbon handprint: The net impact All the above energy audits should be to make an organisation contribute zero emissions which are called bye bhai use of water generation of waste use of energy e environmental damage health damage and finally to explore if the campus or direction can go in in contributing to third-party emissions minimising

Benefits of green audit: To draw home the benefits, the system has been separated out into various audits as listed above. In doing so, and if audit findings are effectively implemented there are many advantages that can be practised in the process

- Recognise the cost saving methods through waste minimising and managing technologies.
- Point out the prevailing and forth coming complications.
- Authenticate conformity with the legal requirements.
- Empower the organisation to frame a better environmental performance.
- Portray a good image of the institution which helps build better relationships with the groups organisations, stakeholders in and around its operations
- Enhance the alertness for environmental guidelines duties and conduct of preparedness for any eventualities due to environmental disasters.

Vision Statement of the institute

The Basaveshwar Commerce College is one of the prestigious institute of Basaveshwar Veerashaiva Vidyavardhaka Sangha, Bagalkot which was founded by His Holiness Shri Gurubasava Mahaswamiji of Bilur in the year 1906, with the opening of a Sanskrit Patashala.

It provided the impetus that propelled a sleepy little town into an Educational, Commercial and Industrial hub of this backward area of Karnataka state.

Our Vision

Imparting Excellent Education and Training in Commerce and Business Administration, thereby earning a unique Distinction as Top-notch Commerce Institution in North Karnataka

Our Mission

Basaveshwar Commerce College was established in 1970 with a great mission of imparting professional education in commerce, Business Administration & Management at U.G & P.G. Levels.
The Broad Goal of the college is to respond to the ever-changing needs & expectation of Business Environment and Demands of the community by molding students into accountable citizens, developing a sense of Dedication, Social Conscience and Commitment.

Objectives

To bring out graduates of excellence, complete character and integrity to venture into right vocations, professions and entrepreneurship.
To harness the students potential through coordinated efforts and personal attention.

Core Values

Critical thinking and problem solving.
Leadership.
Encouraging and building student ability, character and creativity.
Ethics: We believe in acting with honesty, courage, and trustworthiness.
We value an institutional attitude and culture that promotes and supports total health and wellness of staff and students.
Excellence: Maintain a high standard of integrity and performance leading to the achievement of academic and professional goals.

Core Values of the Institution.

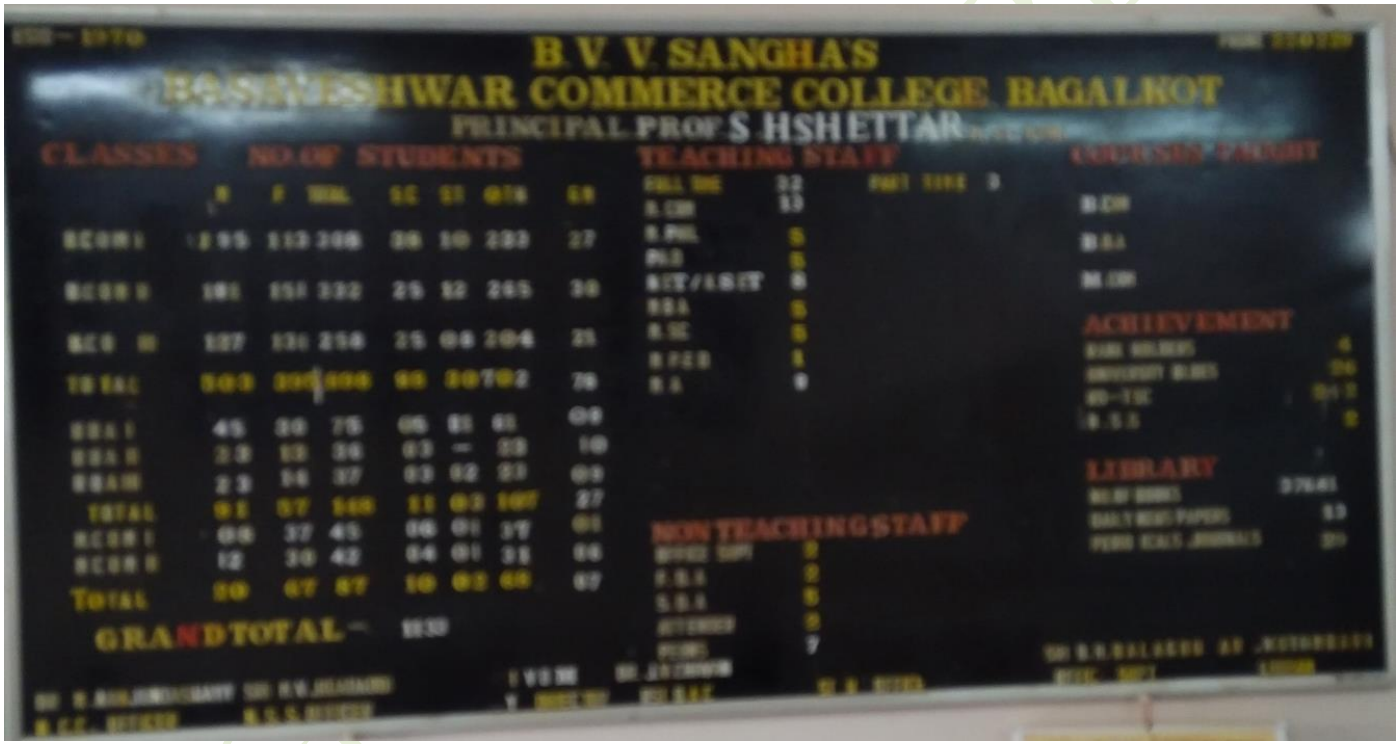
	We, The Principal, staff and students, adopt responsible practices in our daily activities with due regard to the environment. We set and continually review objectives and targets for achieving our goal to protect our entire college premises from all pollutions primarily. We seek to compile with safety and environmental regulations to implement inhouse standards to improve our environmental performance. We commit ourselves to the safe operation of all our working habits, be it in classrooms, library, canteen, on road, off road, in-campus out-campus as well as at our place of stay. We adhere to reduce environmental load by efficiently using resources, saving energy, reducing waste, encouraging material recycle, with special emphasize to minimising emissions of greenhouse gases, ozone depleting substance and particle matter. we endure to minimise environmental loads and adopt environmentally friendly technologies when ordering and purchasing necessary products and resources. We endure to attend educational programs and promulgate our close friends and colleagues to follow suite We endure to ensure that we recognize the essence of this Green policy by actively and aggressively conducting workshops and training to all in environmental concepts. We make wide ranging social contribution to close association with the students, teaching staff, administrative staff, housekeeping staff by disclosing environmental information and supporting environmental consumption. Principal	**DAY's GREEN PLEDGE (proposed)** *(indicative templet for display at all prominent areas, classrooms, waiting rooms, canteen, library, relaxing areas in the campus.)*

BASAVESHWAR COMMERCE COLLEGE

The Basaveshwar Commerce College is part of B.V.V.Sangha, which was established in 1970 with 50 students. The college has become predominant in the field of commerce and management education within a span of five decades. Basaveshwar Commerce College is the only independent commerce college in Bagalkot district. At present, nearly 1800 students are studying at the College. The college is offering various courses such as B.Com, B.B.A, M.Com and CA foundation coarse. The college has committed and dedicated faculty by large, it is committed for academic excellence and all-round development of the students. The Alumni of college are serving at their various capacities around the world. Some of them are leading chartered accountants, judicial officers, people's representatives, government officers, and entrepreneurs. In total Basaveshwar Commerce College is one of the outstanding colleges in Karnataka.

Overview of the institution.

College Outlay Board



All the discussions in the report evolve around the social existence of the citizens, the economic contribution factors, The industrial establishment and opportunities for entrepreneurship.

Bagalkot, is a city in the state of Karnataka, India, which is also the headquarters of Bagalkot district. It is situated on branch of River Ghataprabha about 481 km (299 mi) northwest of state capital Bangalore, 410 km (255 mi) southwest of Hyderabad, and about 570 km (354 mi) southeast of Mumbai. The population of the urban agglomeration was 111,933 according to the provisional results of 2011 national census of India, and the city is spread over an area of 49.06 square kilometres (18.94 sq mi)[2] with an average elevation of 532 m (1,745 ft) above MSL.

Education.

Bagalkot has a number of educational institutions, including Basaveshwara Vidya Vardhaka Sangha and Sakri Sangha. A number of colleges are affiliated with Rani Channamma University, Belgaum, Visvesvaraya Technological University, Rajiv Gandhi University of Health Sciences, Ramanagara. Basaveshvara Engineering College (BEC) was established in 1963. S Nijalingappa Medical College, HSK (Hanagal Shree Kumareshwar) Hospital and Research Centre, Bagalkote is affiliated with Rajiv Gandhi University of Health Sciences.

The University of Horticultural Sciences (UHS) is headquartered in Navanagar, Bagalkote with its constituent colleges spread across the state.

Economy.

Agriculture is the largest employer in Bagalkot, with over 65% of the working population engaged in it; approximately 80% of female workers in Bagalkot are engaged in agriculture. Like most of north Karnataka, Bagalkot is very rich in black soil which is conducive to the cultivation of cotton. Bagalkot's economy was valued at US$5.6 billion, making it the 12th largest economy in Karnataka. The approximate per capital income is US$360. The chief crops cultivated are rabi and jowar, as well as groundnut, cotton, maize, bajra, wheat, sugarcane and tobacco. Jowar is largely cultivated because it can be grown during rainy seasons as well as during the winters. The crop also is the chief supply of food for the people. Pulses are also

FACTORS CONSIDERATION.

Sourse :

https://en.wikipedia.org/wiki/Bagalkot_district

Keeping civilized and self-sustainable growth contribution, all discussions in the report are based on the factors driving the civilization of the city and the nearby areas and their work culture.

grown in the region, primarily *tuvar daal*, gram, kulith and *mūng daal*. Castor oil, linseed and sesamum are also grown in Bagalkot. Water supply for irrigation includes reservoirs such as the Kendur reservoir, which is six miles from Badami and the Muchkundi reservoir, which is 4 miles from Bagalkot. Famine due to lack of adequate rains is quite common in Bagalkot. A famine that struck the region in 1901 inflicted considerable financial loss to the agricultural industry in Bagalkot. The district has the fifth highest farmer suicide rate in Karnataka.[18] Efficient water management techniques and government sops have only marginally mitigated the repercussions of the drought stricken district.

A sizable proportion of the population also consists of weavers. The chief manufactures are cotton and silk cloths. Large quantities of cotton yarn are also dyed and exported to other parts of the state and country. Most of the immigrants in the district are either money lenders or cloth merchants.

Industries.

The focus sectors include agriculture, cement, sugar-based industries, silk and handloom industries.

It is one of the two handloom units (other is Dharwad) in India from where woven khadi is obtained and transported to Karnataka Khadi Gramodyoga Samyukta Sangha based in Hubli (which is the only licensed flag production and supply unit in India).

Many new industries are planning to begin in Bagalkot. New cement industries have been registered and are waiting for the permission to begin. There are other small-scale industries like Cement Pipe Industry which produce cement pipes, Bangle Industries which produce bangles, Match Stick Industries, Agarbatti Industries, Plastic Bag Industries etc. in Bagalkot. At the outskirts of Bagalkot city there are many small-scale industries set up. These come under the Vidyagiri area of Bagalkot city, which is the latest extension of the city. Small-scale industries like Ceramic Tile Industry, tyre industry, Stone Cutting And polishing Industry, milk Dairy etc. are running successfully. At Gaddanakeri there are many limestone industries and brick industries. The limestone industries produce lime for whitewash and painting. The brick industries produce bricks required for the construction of houses. There are local oil industries and oil refineries which produce oil from groundnuts, sunflower, sesamum orientale, cotton etc.

Bagalkot

City	Coordinates: 16.1817°N 75.6958°ECoordinates: 16.1817°N 75.6958°E

Bagalkot

Location in Karnataka, India

Country	India
State	Karnataka
Region	Bayaluseeme
District	Bagalkot
Government Type	City Municipal Council (CMC)
Body	Bagalkot CMC & BTDA
Total Area	49.06 km² (18.94 sq mi)
Elevation	537.06 m (1,762.01 ft)
Total Population (2011)	112,090
Density	2,183/km² (5,650/sq mi)
Demonym(s)	Bagalkotiens
Official Languages	Kannada
Time zone	UTC+5:30 (IST)
PIN	587101-105
Telephone code	08354
Vehicle registration	KA-29, KA-48
Website	bagalkot.nic.in

BAGALKOT WEATHER BY MONTH // WEATHER AVERAGES

	January	February	March	April	May	June	July	August	September	October	November	December
Avg. Temperature (°C)	23.5	25.4	28	29.4	29.3	26.4	24.9	24.9	25.2	25.4	23.9	22.7
Min. Temperature (°C)	16.8	18.3	20.8	22.7	23	22	21.5	21.3	21	20.6	18.4	16.5
Max. Temperature (°C)	30.2	32.5	35.2	36.2	35.7	30.9	28.3	28.5	29.4	30.3	29.5	29
Precipitation / Rainfall (mm)	0	3	5	30	66	80	113	87	145	124	24	6

Data: 1982 - 2012
The difference in precipitation between the driest month and the wettest month is 145 mm | 6 inch. The variation in temperatures throughout the year is 6.7 °C | 44.1 °F.

Source : https://en.climate-data.org/asia/india/karnataka/bagalkot-51062/

Average annual rainfall recorded is around 683mm.

EXECUTIVE SUMMURY.

Sr No	Obse-rvation*	Problems*	Resulting losses*	Remedial measures*	Capital*	Projected savings*	Category 7
1	Rainwater Management	No serious water problem seen but anticipated.	Need quality water for social existence.	Structured approach to retain the rainwater within the campus.	Yes, Capital intensive	Improved quality of water and high yield. Calls for reduced pumping hours and eliminate or reduce need for water conditioners.	7.1.4
	Surface water	Runoff to drain	Wastage of precious pure water	Divert to specified point near to borewell.	Rs. 50000/-		
	Water management	Flooding bottle watering					
2	Solid Waste Management	Spillage of waste	Dirty used packages in and around the college	Awareness to place the waste in right place.	Already in place, however, needs to be refined.	Reduced cleaning hours and good hygienic conditions.	7.1.3

Sr No	Obse-rvation*	Problems*	Resulting losses*	Remedial measures*	Capital*	Projected savings*	Category 7
	Paperless admin						
3	Personal Health	Used Sanitary pads dispensing unit is not in place.	Open area disposal	Incinerator to be placed at convenient point and proper training is given to the students to make use of it.	Nil	Clean and safe health.	7.1.3
4	Used Battery disposal	Proposed to regenerate the used batteries	Increased use of batteries	Procure Battery regeneration system	Rs.18.00 Lacs	Extended life of bateries by three times.	7.1.3
5	Work culture	To follow the recommendations in the Energy audit and Environment audit report and implement the recommendations in its daily activities by all the occupants of the campus.					
6	Cumutation and safe distancing	Parking	High energy consumers	Educate and practice	Nil	N/a	

Sr No	Obse-rvation*	Problems*	Resulting losses*	Remedial measures*	Capital*	Projected savings*	Category 7
	Protect green cover by human intervention.	Provide human habitual approach rather than forced paths which are not followed by normal behavioral aspects.					
7	Natural Lighting	Un cleaned windows and ventilators, forced switching on of tube lights	High energy bills	Clean the windowpanes and allow maximum natural light penetration.	Nil, part of routine, In house manpower.	Substantial cost of energy bills on lighting.	7.1.2 7.1.6
8	Natural Ventilation	Permanently closed ventilators.	Creation of hot air pockets below the ceiling.	Open the Ventilators for easy exit of hot/warm air from the rooms.	Nil, In house manpower.	Eliminates use of Electrical Fans and Substantial cost of energy bills	7.1.2 7.1.6
	*** For details please follow the discussions in the report.**						

ACKNOWLEDGEMENT:

SUNSHUBH RENEWABLES & RESEARCH CENTRE is pleased to express its sincere gratitude to the management of BVV Sangha's Basaveshwar Commerce College, Bagalkot, for entrusting SUNSHUBH RENEWABLES & RESEARCH CENTRE with the assignment on Green Earth practices based on Educate, Practice, Advocate & Manage the resources in their educational organization.

We acknowledge the assignment allocation sent by Email on 19th Oct 2019.

We also wish to thank Smt. S H Shettar, Principal, Green Audit Co-Ordinator, Prof. M M Huddar, IQAC, Dr. J N Chavan, NAAC, and Mr. V V Nandaragi, IQAC Secretary, who have been constantly following with the green aspects and developments in the college. It was on their instance that we got to evaluate the initiatives undertaken.

The officials and the maintenance staff for the help rendered during the energy flow study.

We would fail if we neglect to appreciate the sincere efforts put in by the Faculty and the Students who against all odds have kept the college premises clean to the possible limits.

Without the crucial and significant support from the fellow teaching team the potential energy saving options and carbon footprint reduction would not be a reality.

With the motivational support of the management, ground realistic support from teaching team and sincere efforts of the students in incorporating the change (habits) and instructions, the college could effectively declare the reduction in Carbon footprint and optimize the waste reductions.

We are not in a position to compute the carbon footprint at this point of time as the basic information from each of the students is yet to be collected; however, **we will discuss the Carbon Foot print in the follow up compliance report.**

Wishing the team a great success, we deeply express our gratitude and heartfelt "THANKYOU" for allowing us to assess the energy flow scenario there by the GREEN STATUS.

Mallikarjun A. Kambalyal. B.E.(E&C).
Certified Energy Auditors (EA-3485)
SUNSHUBH RENEWABLES & RESEARCH CENTRE

LIMITATIONS:

Our recommendations are in the interest of conservation of Electrical Energy and Green Culture i.e. the reduction in CARBON FOOTPRINT. The compliance to the recommendations will be subjected to meeting the safety and Environmental rules and guidelines.

AUTHENTICATION & DATE OF GREEN AUDIT:

This Green Audit has been carried out on 12th June 2020 under the instructions of Smt. S H Shettar, Principal, and in the presence of Prof. M M Huddar, IQAC, Dr. J N Chavan, NAAC, and Mr. V V Nandaragi, IQAC Secretary,

LIST OF INSTRUMENTS:

During the process of the Audit, the following lists of instruments were (considered for) use (wherever applicable).

Sr No.	INSTRUMENT	MAKE	APPLICATION
1	Digital Power Analyser(PC Interfaced)	SCHIVAN ARNOX	Electrical Machinery.
2	Accessories -3000 Amps	ARNOX	Higher load UPTO 3000 Amps,
3	Accessories -200 Amps	ARNOX	UPTO 200 Amps,
4	Thermal Imager	FLIR	Identify loose contacts and bearing losses
5	Power Analyser (Manual)	MECO	Electrical Machinery.
6	Infrared Thermometer	METRAVI	Thermal (Fuel) Energy.
7	Digital (Contact) Temperature & Humidity Meter.	METRAVI	Electrical Machinery. (A/C's And Cooling Towers)
8	Digital Tachometer	METRAVI	Electrical Machinery.(A/C's And Cooling Towers)
9	Lux Meter	METRAVI	General & Task Lighting.
10	Sound Level Meter	METRAVI	Electrical Machinery. Generator Sound Proofing

Sr No.	INSTRUMENT	MAKE	APPLICATION
11	Digital Anemometer	METRAVI	Electrical Machinery.(A/C's And Cooling Towers)
12	Digital KW Meter	METRAVI	Electrical Machinery.
13	Digital Power Factor Meter	METRAVI	Electrical Machinery.
14	Lap Top Computer	HP	To Interface The Instruments For More Accurate - Sophisticated Readings In Sensitive Equipments.
15	Ultrasonic flow meter		Measure liquid flow.
16	Portable Vibration Meter.	METRAVI	Structural Stability
17	Live cable detector probe	-	Detect hidden cables for safety audit.
18	Power Analyser – EMM 5	Beluk	For remote communication and detailed audit.
19	Power Analyser – ELITE PRO	Beluk	Power Analyser.
20	PT's for Transformer audits.	KALPA	On field auditing of transformer loading and imbalance evaluation.

Only appropriate instruments were used wherever necessary.

ABOUT GREEN AUDIT:

BVV Sangha's, Basaveshwar Commerce College, Bagalkot has asked SUNSHUBH RENEWABLES & RESEARCH CENTRE, Hubli., to conduct the Green Energy Audit for their Institution.

In this context, the management of the Institute represented by Smt. S H Shettar, Principal,, entrusted us the task of conducting the feasibility study to reduce energy consumption and adopt green habits.

SUNSHUBH RENEWABLES & RESEARCH CENTRE represented by Mr. Mallikarjun A. Kambalyal made a detailed study and readings of various appliances were taken and carried out the GREEN audit along with the safety parameters.

Based on the information available and the requirements put before us, it was decided to submit the report in two parts,

1. GREEN AUDIT where in pollution Preventive measures are necessary
2. ELECTRICAL ENERGY CONSERVATION opportunities within the college.

We hope the points presented will be self-explanatory, if there is need for any clarification, we are open for discussions.

ONGOING STATUS:

It's an optimistic & highly dedicated team effort lead by the Principal & the senior staff who have dedicated all their wits & free time to initiate Green Carpet the entire college premises. It is also a fact that there do exist, few short comings which however is unintentional& on being trained & educated the campus should look for continued minimized waste generation. With all due appreciation to the management, staff involved &cooperation by the students, we have made few suggestions which on implementation, will reduce, demand for water & electrical power. It will also reduce the existing level of pollution to bear minimum.

There is high potential among the students to be educated and spread the knowledge of going ZERO waste generation in their respective colonies and society they dwell in, contributing positively to the cause of

NO WASTE – NO POLLUTION – NO HEALTH HAZARD.

DISCUSSIONS ON EXECUTIVE SUMMARY:

Environment Audit.

Aerial View of the College Campus.

GREEN AUDIT REPORT.

Primary Considerations: Conservation practices that can be brought about in the campus contributing to use of natural resources.

RAIN WATERMANAGEMENT:	Category 7.1.4
Water is the primary source of energy and motivation factor for all good things that can happen in the world. The gradient indicates that the complete campus rainwater can be pooled at Pt A and the same can be put to use by recharging the borewell. The spots marked as • Pt-A is at 1759ft (Rt at the gate it is 1757ft), • Pt-B is at 1762ft • and Pt-C is at 1760ft elevation (ie the borewell in front of the College). Considering the space constraint, The rain water harvesting structure can be considered to be executed at at Pt–A. Garde space near the gate canbe considered with	

due regards to the landcape. Since he area is in Acres, The RAINWATER must be given its due importance.	

QUADRANGLE GARDEN:	
The college has very little space for the garden. However, the rainwater if used to recharge the subsoil, the perennial plants in the adjoining campus would thrive with green cover during summer days when watering is not possible. The roof water of the campus is channelized to the center. However, it is left untapped. There is a need for planed percolation to manageable area to avoid flooding the central space and then at the low-lying areas. We suggest that the college discuss with the other colleges in the campus and collectively take-up RAINWATER management project. What is visible is that the college is fully covered under the tin/tiled roof. The inner part	

of the rain water is collected and left open in the quadrangle. The total rainwater is captured from 1250 m^2 area.

Of the total area, ie 2020 m^2, 770m^2 area the rainwater is untapped. This water can be channelized to the Borewell marked near point 'A'.

<u>The images captured are indicative.</u>

The existing watertank located in the quadrangle, which has been covered under lawn may be considered to be used for rainwater percolation.

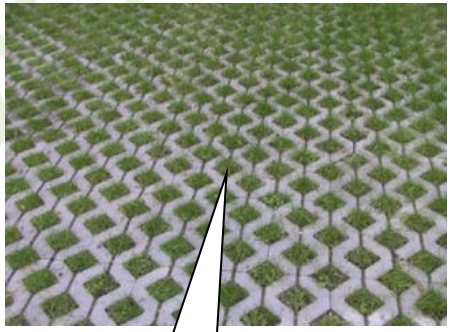

LET THE GREEN
BE SEEN

SURFACE WATER	Category 7.1.4
The water that hits the road may be channelized to the lowest point (Point A) along at random, there are no specified exit points provided & hence would flood the low lying areas. The fact that Water & Tar (Bitumen) do not go hand in gloves, the road should be made in such a way that the rainwater does not over stay. The road should be such that the water flows off across the road and at no stage the water should be allowed to flow along the road. Although the roads are lai, in future, It is advised to consider the use of perforated pavers as shown in the subsequent discussions. The runoff water can prove to be very resourceful if harvested judiciously.	 **Illustrative**

CONCRETE PAVERS:

It is observed that the part of the open area in the college has been left open. The Rain water will runoff into adjoining areas. Hence, acting against the interest of water conservation measures & depriving the perennial plants around it from natural watering system.

It would be appreciated if the perforated pavers are used in lieu of the present system. This will help in increasing the greenery in addition to managing the Rainwater & preventing possible flooding.



Perforated pavers, increase water percolation, prevent flooding and gives decorated flooring too.

SOLUTION:

Guide the terrace Rainwater to flow through the pipe. This helps to avoid dampening the walls and prevent defacing the inside part.

It also prevents down flow of rainwater at random.

WATER MANAGEMENT:	**Category 7.1.4**
Watering the plants in excess or not watering them hampers the healthy growth, it also result into wastage of water & increase manpower. **SOLUTION:** Water management is advised as shown in the illustration here, using the waste plastic pet bottles. This will help in surface evaporation loss. For larger plants it is advised to incorporate mulching & using organic waste & cover with newspaper/wastepaper. The significance of newspaper to cover the mulched area draws the attention of the students & the visitors. Thus creating a platform for education & knowledge sharing.	 Drip system using left over water bottles. Pin holed top should do the dripping needing lust 1-2 times of top up in a week.

SOLID WASTE MANAGEMENT	Category 7.1.3
It is highly appreciated & worth noticing the level of awareness of spillage. It was noticed that the college management is focusing to maintain cleanliness & spitting Gutka is banned. To keep the good going, it is important that we facilitate the provision for waste disposal. Hence, it is advised to place waste segregation bins. There is an urgent need for placing waste bins at regular distances. Ideally for every room there should be two bins placed in front of the class room . One in Yellow/Red and the other in Green in color. It is necessary to educate the inmates to use to place degradable waste like food, paper and other vegetable waste in GREEN colored bin. The plastic and other metal waste, should be placed in red/yellow colored bin. This method imparts the sense of segregating waste at sourse and makes the task of handling waste simple. It also makes room for revenue generation as the plastic and metal waste	 Illustrative Corrective measures **Plastic Bins**  **Metal Bins** 

can be sold at a later date.

SOLUTION:

A very innovative concept of waste collection system has been introduced by the college near by @ Ilkal. A little change can be followed ie, coluor the baskets and display its objective.

The green is to be used for organic waste and paper.

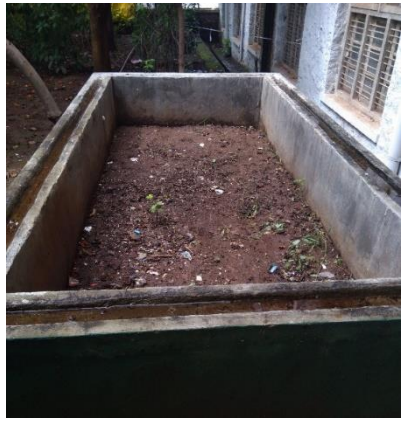
The yellow for Plastic and Metal waste.

The red should be used for chemical, hygienic waste like medicinal packings, pads etc.,

Ease of approach should make the clean & green practices self sustainable.

By incorporating the segregation of the solid waste at the point of its source will make the task of handling it at the Vermicomposting pit easy and time saving.

Local Biodegradable

ORGANIC WASTE MANAGEMENT:	
The organic waste management system should be built and information on the befits should be prominantly displayed. It would be highly appreciated if it is on one side and in front of the college. The information displyaed would educate the pupil of other institutes as well.	Illustrative 
Use of Paper and waste management. The college need to work out a policy for paperless communication and record maintenance. The college within its purview can consider going paperless. To draw home the possibilities, We are presenting a technical article in reference to various areas it is made possible.	The copy can be downloaded using the link https://www.ijeat.org/wp-content/uploads/papers/v8i4/D6268048419.pdf

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Paperless Administration in Indian Higher Education

Srimathi H, Krishnamoorthy A

Abstract*: The Higher Education sector in India is witnessing massive and exponential growth in terms of number of students and institutions. The procedures associated with the academic processes such as admission, teaching, examination and support services have also grown manifold. Institutions, irrespective of the size and scale, can practice better paperless administration using content ecosystem and digital tools. Both government and institutions make use of digital communication and customized applications. However, the over-dependence on paper in data processing is still a continued practice which necessitates the maintenance of volumes of physical documents by the administrative and academic departments that many times leads to delays in responses. The ideal scenario of a paperless learning environment may not be feasible in reality but the extents of paper usages can be brought down drastically to minimum levels with proper knowledge of information life cycle. The digitization with complete e-governance ensures paperless administration process. The institutions are having improbable idea to process automation and reducing paper consumption. This paper analyses the practices and methods in vogue that minimize usage of paper – based system and explores the feasibilities of interdependent work flow automation to make it better.

Index Terms: Admission, Paperless, Digital India Initiative, ECM, ERP

I. INTRODUCTION

Though computers are extensively used in universities, the administration process is paper based. The digitization of information content is easy, but there is no clue to proceed further with respect to application integration, control over scattered electronic documents, smooth information flow between departments, consistency and de-duplication, where the Enterprise Content Management (ECM) system provides solution to this. According to (Gartner, 2003), ECM refers all type of enterprise content and a bundle of software products which manage the entire content life cycle. (AIIM, 2010a) further extends ECM definition as "the strategies, methods and tools used to capture, manage, store, preserve and deliver content and documents related to organizational processes including unstructured information". ECM reduces burden of toggle between different Enterprise Resource Planning (ERP) applications, Customer Relationship Management (CRM), Learning Management System (LMS) and physical documents for decision support. The main challenge is in creating well-defined document flow since the process deals both structured and unstructured data formats as the activities are interlinked in nature as given in Figure 1. The research is motivated by the growing amount of Government initiatives with Digital India movement and technological implementation in higher education institutions to serve students of digital era. The study examines and evaluates the existing paper processes and workflow which will result in the implementation of electronic solutions. The need of best practices in information exchange, system complying with recordkeeping laws and information security managements is also highlighted.

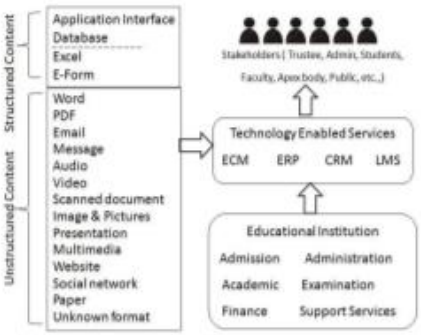

Figure 1. Educational Technology services deal with different content format

II. GOVERNMENT INITIATIVES

Department of Electronics and Information Technology (DeitY), Government of India is taking significant steps towards Digital India program and the same is supported and extended by Ministry of Human Resource Development (MHRD), Accreditation bodies and higher education councils. The announcements, notices, circulars and other communications from apex bodies to respective institutions are shared via email and hosted in website for quick reference. All India Council for Technical Education (AICTE) insists institutions to upload the approval documents of technical and management programme. University Grants Commission (UGC) accepts online submission for course approvals and institute affiliations in Distance Education, where it continues the hard copy submission for other programmes and affiliations. The online submission and electronic form (E-form) upload can be

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Srimathi H, Assistant Director, Directorate of Admissions, SRM Institute of Science & Technology, Chennai, India.
Krishnamoorthy A, Associate Dean - EIE, SEEE, SASTRA Deemed University, Thanjavur, India..

extended and practiced by UGC and all other statutory professional councils. The E-Form is used in self-study report of accreditation bodies such as National Assessment and Accreditation Council (NAAC) and National Board of Accreditation (NBA). The supporting documents are also to be submitted in the form of scanned digital documents.

The digital submission and facility of system decision support system on various parameters helps the accreditation bodies to scale up their reach and serve as pre-qualifier to plan evaluation. (MHRD, 2017) MHRD has adopted digital technology for information transmission under National Mission on Education through Information Communication Technology (NMEICT):

- Know your college portal for students
- National Program on Technology Enabled Learning (NPTEL). Indian Institute of Technology has promoted Massive Open Online Courses (MOOC) with edX platform (a digital initiative of MIT and Harvard University) to offer quality education from the best teachers to Indian students and ensure the improvement of individual academic performance.
- Educational satellite (EDUSAT) to home platforms
- A-View as multimedia platform for video delivery
- Virtual Labs helps in establishing remote access of lab experiments in various disciplines of science and engineering,
- E-Yantra (next generation embedded system), Talk to teachers, Spoken tutorial and free open source software to be used for academic purpose
- Data collection in data capture format (DCF) in annual All India survey on Higher Education (AISHE) and National Institute Ranking Framework (NIRF). The structured DCF used in data collection fasten the computation of Gross Enrollment ratio (GER) of higher education and useful to other statistical analysis.
- Library Resources: As a part of Universal Digital Library Initiative, the digital library India has scanned books written on English and Indian language. (Balakrishnan et al, 2006) The project fosters several research activities such as language technologies in text summarization, machine translation, hand writing recognition, optical character recognition etc.,
- DigiLocker facility: There are several school boards made their board result certificates digital and this enable the institutions to verify the scores. This will ease the merit list preparation of educational institutions in admission process, when the service is utilized by all boards of school education. As admission application went online, the digital verification of certificates minimizes the submission of hard copy submission of grade sheets and time taken for manual certificate verification as happened in case of Tamil Nadu Engineering Counseling 2018.

(UGC, 2017) UGC has also taken significant digital initiatives at its end and also through Information Library Network (INFLIBNET) as listed in Table 1.

III. AT INSTITUTION LEVEL

Apart from Government directives, institutions realized that the millennial students are technology oriented and demanding quick response on rendered services. The computerized business systems improve administrative efficiency and reduce a toll on management and faculty to process paper documents on students, courses and exams.

Table 1. List of digital initiatives of UGC and INFLIBNET

e-Office implementation	Public finance management system
e-Governance	University activity monitoring portal
Direct benefit transfer	Wifi connectivity to 40 central universities
Regional office website	Integrated portal for planning, finance, coordination
Academic job portal	National academic depository (NAD) exam certificates
UGC NET online	Online courses SWAYAM (Active learning platform)
Public grievance portal	E PG-pathshala (Post graduate programme)
Student grievance portal	Shodhganga (digital repository of dissertation)
e-scholarship award & portal	e-ShodhSindhu (access to e-journals, e-books)
Antiragging mobile App	Indcat (online union catalog of bibliographic data)
Uniportal database of universities	Soul (State of art integrated Library Management)
SWAYAMPRAHA DTH channel	IRINS (Web Research Management System)

Universities incorporated electronic communication process for any kind of communication, upload the same on website and sends individual institution approval letter through email. (VTU, 2018) One of the universities hopes to gradually move towards a less paper and paperless office, since it serves digital communication to more than 200 affiliated colleges under its control.

(ePravesh, 2015) Considering the Indian youth population who aspires to tertiary education, the 'go online' in admission process reduces the paper usage. In addition, it helps to minimize problems related to overlapping counseling dates and in turn reduce physical / mental / financial burden of candidates due to multiplicity and transportation. The counseling process of engineering, medical and other professional courses are carried out online. Most of the entrance examination, application submissions and counseling are made online. As the medical entrance is mandate for admission throughout India, the strength of students who appear for medical entrance is increased and council planned to conduct medical entrance through online from year 2019.

(SRM, 2016) One of the biggest private institutions made its student course registration and support services as online for its fully flexible credit system, where the students have the liberty to choose course of study and select faculty members. Students receive individualized time table upon completion of registration. The students are serviced with quick response on cloud and eliminated to shuttle from one office to another for processing paper documents..

(Mindlogix, 2016) There are quite a few universities adopted paperless exam and digital evaluation system. The first initiative was sending question paper online through a digital secure network and affiliated colleges download the same, take sufficient printout and distribute. In the next level, the answer scripts are scanned and sent to examiners for evaluation. In the paperless exam, the students will get question paper on their computer screens, which avoid question paper leak and

rich media content, multi-format content repositories, business flow, preservation policies and development tools of workflow, taxonomy, forms template and content authoring. The core content services include indexing, searching, digital rights, security, collaboration, approvals, digital signature and etc, (Alawan et al., 2014) Thus the properly implemented ECM positively influences on speed of problem identification and decision quality. In addition, it ensures centralized control with local flexibility that helps higher educational institutions to provide better services.

Figure 3. ECM Reference Architecture Framework (Source : DTCA, 2014)

VI. AREAS TO GO PAPERLESS

(AACRAO, 2016) Education sector is one of the important industries which not only creates and maintains large amount of information but also in the need of secured storage access and efficient business process. The functions of higher education system are segmented based on the nature of information impact, stakeholder's presence and kind of ECM implementation. The high impact business information which involves strategic decision on approvals and permanent preservation are grouped and listed in Table 2. The lack on preserving high impact strategic documents creates sever administration issues. The process flow of admission with both paperless and paper-based options is listed in Table 3, where the technology usage in every stage improves response in admission process.

The online admission process will enable the distributed target audience across the country and attract International students. The required ECM guidelines on academic, accounts and support services are briefed in Figure 4. Effective university websites speak clearly, even to yet-to-be students, and make it understandable by all. Table 4 provides guidelines on web content creation / maintenance.

Table 2. ECM guidelines for high impact Enterprise Content

Table 3. Admission

Admission Stages	Paperless Service	Paper based service
Marketing	Website, CRM, Digital Marketing (email, SMS, Webinars, Social Media, pay per click, Search Engine optimization, Chatbot, etc..) & Lead conversion from info session & career guidance websites	News Paper advertisement, Banners, Hoardings, Brochure, & Prospectus usage in Open house and Info session
Application	Online	Download Form, Optical Mark Recognition (OMR)
Entrance Exam	Online	Paper-Pencil
Hall Ticket	Download	Through Courier / Postal service (much practice is stopped)
Certificate verification	Online & DigiLocker	Manual verification
Merit list & Counseling schedule	Online	Through Courier / Postal service (much practice is stopped)
Counseling	Online	On-campus
Payment	Online	Demand draft
Enrollment	Online for data capture	On-campus for student ID, document submission
Hostel booking	Online	On-campus

Figure 4. ECM guidelines in Academic, Accounts and support services

Table 3. ECM / Web guidelines & Best practices on Web Content

- Establish Web Governance Board to set the direction and policies, where the process chart should clearly mention the content type and responsibility of contributor, approver and publisher
- Apply Web Accessibility Standard Guidelines to optimize the impact of institution web content
- Ensure all content of university page is published within the university domain (no external website for any reason)
- Gear the content to target audience with quick scan rather than reading (prospective students, parents, current students, faculty, staff, alumni, prospective employer, press and general public)
- Do not upload video content as primary source of information
- Page should contain some useful information, prior to linking
- Emphasize strengths in Placements, Student achievements, Career guidance, Student affairs, Campus life, International alliances & Semester abroad programme, Industry internships, Faculty & infrastructure facilities, Admission procedure and mandate information etc.,
- Utilize content management tool for web publishing (especially pages with frequent updation)
- Audit web content prior to publishing, Perform usability testing to improve

VII. CONCLUSION

(AISHE, 2018) In India, there are 903 universities, 9050 college and 10011 stand alone institutions as on date with cumulative enrollment of 36.6 million. Implementing paperless in simple office communication itself makes great change in cost cutting on paper usage and move towards green imitative. The research covered the government initiatives on digitization and the prospects of paperless in higher education academic, administration, research and support services. The present disintegrated / stand alone applications / paper based services to be integrated using ECM reference architecture with reference to capture / storage / security / access & deliver compliance. The institutions need to understand the importance of managing content life cycle from creation to final disposition. The study recommends the institution to investigate their present operation, future need, scale up with short /mid / long term plan of action in ECM implementation in turn make the administration go paperless. This helps in enhancing the communication, student experience, student support services and creating a campus with technology excellence.

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AUTHORS PROFILE

Prof. H. Srimathi has two decades of experience in higher education and services. She is employed at SRM Institute of Science and Technology since 1999 and served in various domains such as academics and administration. She is passionate about the studies on higher education systems, qualification framework, and academic mobility.

Prof. A. Krishnamoorthy has three decades of experience in engineering education. He is currently employed at SASTRA Deemed University. He is passionate about the studies on optimization techniques, machine design, renewable energy sources and higher education systems.

HEALTH HAZARD:	
The lady's room and the girl's room should be provided with the Sanitary Pad incinerator. At the point of use/change. It is necessary that the issue is addressed with top priority. Proper usage training is necessary for the inmates of the Hostel and to all the girls. Use of appropriate dispensing system will avoid water contamination in the days to follow.	**Indicative model** 

Placement of used Batteries	
In compliance with	**Category 7.1.1, 7.1.2, 7.1.3 and 7.1.5**
BATTERY PLACEMENT: The batteries disposal is a environment threat. The Lead a major component in the battery has serious adverse effects. The acidic fumes damage the electronic components and when disposed to environment through uncertified local ragpickers either as scrap or buyback option, The institute stands to be morally responsible to such environmental pollution. The batteries should be placed with good amount of breathing space. Not touching each other. To be placed with well ventilated space. If in case, which is normally done after three to four years, the disposal of the batteries should be prolonged. This is possible by putting into use the Battery regenerative system However, much before the regeneration It is good practice to make room for cross ventilation for the batteries to be placed in cool place.	

The benefits include –

- In normal operating mode, the batteries are known to last for 5 to 6 years.
- With good working practice, they would last for almost three times the life.
- Prolonged life of the Batteries.
- Avoids acid fumes accumulation on the Batteries.
- Increased life of all electronic gadgets around the Battery bank.
- Delayed discarding of the Batteries avoids environment pollution and Revenue outflow for the organisation.

WE suggest to regenerate the batteries once every 3 years, so that the sulfur lining is minimized. If the regeneration is executed once every three years, we can regain the working performance to 95 to 98% of its original status.

However this needs to be backedup with necessary periodical check with the density of the battery solution.

WORK CULTURE:

Placement of footwear: Our work culture is depicted in the way we behave and exhibit.
Value for all commodities is important to conserve the mother earth. Hence the placement of material of use/substance/importance should find appropriate placing. The passage should be clear from all obstacles weather small or large. Here the placement of footwear is only an example. One needs to practice and exhibit in all sectors, be it waste or unused materials or the vehicles parked in wrong place.

This image is just for illustration and is not from the college

Culture

It is important to consider the factors that can disturb others behavior.
Few factors the college can consider to bring in change in are

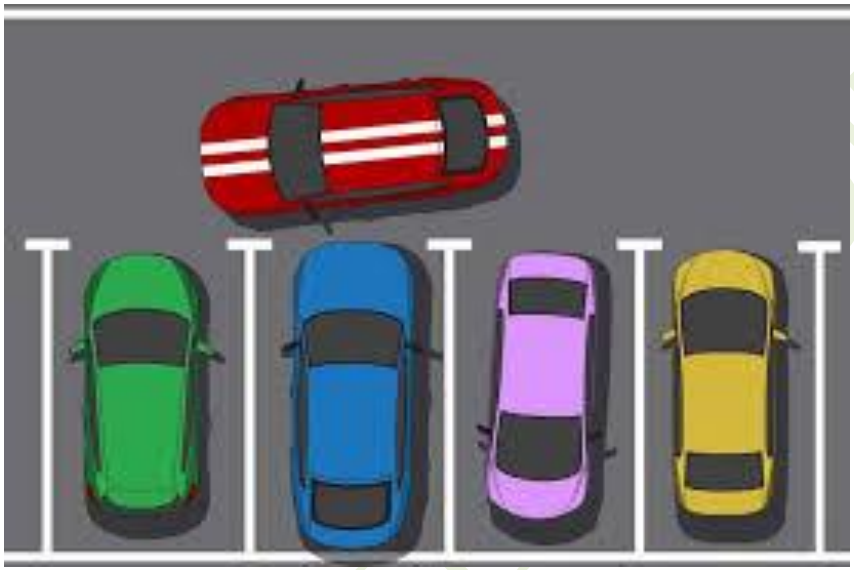
PARKING :
Random parking, be it two wheeler or the four/six wheelers. We often see randomly parked. It is important that all the vehicles are parked in specified areas in such a way that one need not struggle to move out of the place.
Educational institutes should inculcate these basic best practices so that the three to five years of there college days, the student learn the sense of social responsibility. There behavioral culture makes a positive change when they walk out and beheve responsibly. It is a matter of pride for the college too to speak and practice best practices.

Ilustrated

SUGGESTION :

We suggest that the parking space be marked with borders so that the staff and students park the vehicles at the designated space.

The image shown on the right, gives an indication for good parking.



Electrical Power Usage:

It is important to understand the significance of the Energy use implication. The use of electrical power has been observed to be unnecessary. The administration should initiate to keep all unwanted and unused appliances switched off.

It is observed that the lights are left switched ON at majority of places and thus causing huge financial losses to the management and energy loss to the country.

Solution:

It is therefore required to install Light Intensity Sensors in all the rooms.

Lighting improvements should be carried out by using T5/LED or The Induction Light systems in lieu of normal tube lights. If the finance department permits, it is advised to install 40W Induction lamps in all classrooms.

Light Intensity & Occupancy sensor

It is important to discuss some more on the below clipping. This was picked up from the Society goup of College website. It is a case here also considering the placement and conditions prevailing.

Light Intensity Sensor requirement.

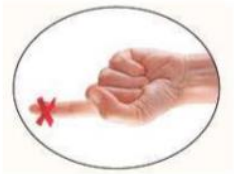
It may be seen that the Light is illuminated. However, the brightness on the students is seen to be coming from the sides. That is the windows. So natural light is more predominant than the tube light. Hence it being switched off has no adverse effect. However, it would save on the energy consumption and contribute to green practices.

NATURAL LIGHTING:	
It is found that the windows have not been blocked and also at some areas need to be maintained clean, if not it calls for switching on internal lights. If the windows are cleaned at regular intervals, it will help in increasing the illumination level in the room. Thus preventing switching on lights during day light. It is also important that in no room the stacking of either the material or the placement of rooms should be allowed.	 Cupboards blocking natural day light should be avoided at all places in the campus.

Physically Disabiled are a talented lot :

Education gives equal opportunity to everyone. Few practices to adopt are listed. For detailed action plan please visit www. https://www.disabilityisnatural.com

Things to Remember



- Treat people as you would like to be treated yourself.
- Do not show pity for a person in a wheelchair. It makes them feel demoralized.
- People with disabilities are NOT alike and have a wide variety of skills and personalities. We are all individuals.
- Most people with disabilities are not sick, incompetent, dependent, unintelligent or contagious.
- **Emphasize the person**, not the disability
- Treat adults as adults. Don't patronize or *talk down to* people with disabilities.
- Be patient and give your undivided attention, especially with someone who speaks slowly or with great effort.
- **People are not conditions** so don't label them with the name of the condition or as part of a disability group. We don't say "the cancerous," nor should we say "the blind."
- Remember, most people with disabilities do want to serve as well as be served and enjoy assisting others.
- Be considerate of the extra time it may take a person with a disability to get some things done.
- Be aware that there are many people with **hidden disabilities** that are not apparent. Just because you cannot see a disability does not mean it doesn't exist.

Barriers to community inclusion for individuals with disabilities

Action: Think on these – how might you see them in yourself and society around you, and what can you do to help overcome them?

Attitudinal- barriers have been defined as a way of thinking or feeling resulting in behavior that limits the potential of people with disabilities. Often it is not the disability, but rather the attitudes of the general public and those providing recreation services (public or private) that limit activities of people with disabilities.

What are Attitudinal Barriers?

* Avoidance * Fear *Stereotyping *Discrimination *Insensitivity * Discomfort

Programmatic- accessibility can be achieved by a number of methods. Providing communication aides such as assistive listening devices, TTY's, and sign language interpreters, support staff, adapted equipment, and making registration available by phone, or providing services at an alternative accessible site are all methods of programmatic access.

What are Programmatic Barriers?

*Communication barriers *Programs in inaccessible buildings
*Registration not available by phone *Visiting field trip sites that are inaccessible
* Activities that fail to utilize all senses
*Information not available in different formats

Architectural- Physical accessibility is a critical issue in providing services/programs for individuals with disabilities, especially those with mobility impairments (i.e. uses of wheelchairs, walkers, canes, etc.) In offering a physical program/service, be aware of physical barriers that may create a barrier to participation in a program.

What are Architectural Barriers?

*Curbs *Stairs *Narrow Doorways *Heavy Doors *Parking *Counters, shelves, water fountains, and telephones that are too high

Person First Language

The following words have strong negative connotations: **Do Not Use:**	The following words are more affirmative and reflect a more positive attitude: **Words with Dignity**
• handicap	• physically disabled
• the handicapped	• person with a disability
• crippled with	• person who has multiple sclerosis
• victim	• person who has muscular dystrophy
• spastic	• paraplegic (person with limited or no use of lower limbs)
• patient (except in hospital)	• quadriplegic (person with limited or no use of all four limbs
• invalid	• person who has cerebral palsy
• paralytic	
• stricken with	
• **Retard/Retarded**	
Do Not Use:	**Words with Dignity:**
• birth defect	• caused by "____"
• inflicted	• disabled since birth
• afflicted/afflicted by	• born with "____"
• deformed/deformed by	
• incapacitated	
• poor	
• unfortunate	
Do Not Use:	**Words with Dignity:**
• deaf and dumb	• deaf person
• deaf mute	• pre-lingually (deaf at birth) deaf
	• post-lingually (deaf after birth) deaf

People First Language – It's all about respect and dignity, not political correctness!

St. Mary's County 9 *Commission for People with Disabilities*

	• deaf/profoundly deaf (no hearing capability) • hearing-impaired (some hearing capability)
• confined to a wheelchair • restricted to a wheelchair • wheelchair bound	• person in a wheelchair • person who uses a wheelchair • person who walks with crutches Explanation: Crutches, walkers, and wheelchairs are mobility aids. Without the use of these mobility aids, the person is restricted from participation in their community.
normal (acceptable only for quoting statistics)	Non-disabled (referring to non-disabled persons as normal insinuates that disabled persons are abnormal)

Some general rules that work in most situations:

Use possessive language to refer to disabilities. Use the word *has* instead of the word *is*. Jenny *has* autism, rather than Jenny *is* autistic. Phrasing the sentence using "has" makes autism just one thing -- among many -- that Jenny has. Jenny also has brown eyes and curly hair. She also has a Powerpuff girls backpack. Oh -- and, she has autism.

Use possessive language to refer to assistive technology. Use the word *has* or *uses* rather that *is confined to*. Matt uses a wheelchair to get around, rather than Matt is confined to a wheelchair. Matt uses augmentative communication to speak, rather than Matt can't talk. In both cases, the pieces of equipment are viewed respectfully as something Matt uses to accomplish everyday tasks.

Things cannot be "handicapped." Parking spaces, restrooms, etc., are designed to be *accessible* for persons who have disabilities. They are not "handicapped" in and of themselves. Refer to them as accessible parking spaces, or accessible restrooms. They could also be parking spaces reserved for persons with disabilities.

Above all, *put yourself in the place of the person about whom you are speaking*. If your main challenge in life is that you are tone-deaf, would you want *everyone* to refer to you as "the singing-impaired person, who is very nice in lots of ways"?

Adapted from Disability is Natural http://www.disabilityisnatural.com/

Attitudes are the Real Disability

CARBON FOOTPRINT.

The beautiful structures planed by the administrators and built by the management clearly indicate that they are concerned about the environment and are committed to deliver good sense of civic discipline and knowingly or unknowingly are exhaling the process of heading towards **ZERO CARBON FOOTPRINT.**

When the infrastructure is in place, the staff are inclined to perform there is nothing that can stop from achieving the required.

The designated staff be trained in understanding the needs and allowed to test their innovative skills to move towards Green practices will accelerate the process of green revolution.

Indicative self assessment system on GREEN HABITS:

EXHIBIT GREEN HABITS:

The college administration, should engage its resources in exhibiting Green Habits as discussed.

ACTION PLAN SUMMARY:

- Earmark the action plan.
- Prioritize the initiatives and execute.
- Observe the benefits and shortcomings.
- Workout further improvement by involving the staff and students.

MODE OF ACTION:

The process of GREEN AUDIT & ENERGY CONSERVATION should be carried out in three steps.

1. Good housekeeping practices using available manpower.
2. Minor alterations using in house work culture with minimum investments on accessories as discussed.
3. Capital investments, which may be required for installation of new methodologies may be taken up on phased manner.

We will be happy to assist you for any further advice/consultancy if required either on Rainwater management or on any of the measures discussed in the report.

We hope the measures are implemented in good spirit and to human convenience and comfort.

For SUNSHUBH RENEWABLES & RESEARCH CENTRE

Mallikarjun A. Kambalyal. B.E. (E&C)
Certified Energy Auditors EA-3485

Note Sheet:

Note Sheet:

Note Sheet:

NTLR

B.V.V.Sangha's
Basaveshwar Commerce College, Bagalkot

Green Audit Report 1-8-2022 to 31-8-2023

Report Generated by NICHROME TESTING
Laboratory and Research Pvt Limited. Dharwad

Email:nicechem@gmail.com

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INTRODUCTION:

Green audit is a valuable means for a college to determine how and where they are using the most energy or water or other resources; the college can then consider how to implement changes and make savings.

Green Audit is a process of systematic identification, quantification, recording, reporting and analysis of components of environmental diversity of institute. It aims to analyse environmental practices within and outside of the concerned place, which will have an impact on the eco-friendly atmosphere. It can create health consciousness and promote environmental awareness. It provides staff and students better understanding of Green impact on campus.

Hence its important that the college evaluate its own contributions toward a sustainable future. As environmental sustainability is becoming an increasingly important issue for the nation and the role of higher educational institutions vis a vis environmental sustainability is more prevalent.

The National Assessment and Accreditation Council, New Delhi (NAAC) has made it mandatory that all Higher Educational Institutions should submit an annual Green Audit Report. Moreover, it is part of Corporate Social Responsibility of the Higher Educational Institutions to ensure that they contribute towards the reduction of global warming through carbon footprint reduction measures.

PREAMBLE:

The policy statement for abatement of pollution (1992) and the subsequent Environment Protection Act 1986 announced by the Government of India seeks integration of environmental considerations into decision making at all levels. Environmental Audit has been recognized as one of the instruments for achieving this objective.

An Environmental statement is an objective assessment, of the extent of compliance of a company with applicable Environmental laws and regulations. It is based upon a review of pertinent records and technical data. The Environmental statement achieves following purposes,

1. Assuring compliance with various Governmental regulations,
2. Reduces environmental risks and liabilities,
3. Cost savings or increasing the efficiency of operations,
4. Indentifies environmental liabilities, if any.

Accordingly, the survey was carried out to review the operations, to collect relevant data like materials consumption, water consumption, waste generated and the pollution prevention method practiced by the Organisation etc. Further improvement plans of the Organisation during the financial year were also noted.

OBJECTIVES

The environmental audit helps in pollution abatement, safety, health and conservation of natural resources focusing attention on areas of concern, practices that need to be changed and plans to deal with adverse effects. The audits would also facilitate the promotion of environmental awareness by companies by framing of proper environmental policies and effective management systems to implement them to achieve sustainable development.

The objectives of an environmental audit in an Organisation can be summarized as follows

1. To determine the consumption of various materials used and the performance of various operations so as to identify usage of materials in excess than required.
2. To identify the areas of water usage and wastewater generation and to determine the characteristics Of wastewater generated and its impact on the environment
3. To identify the areas generating Air pollution, To determine the emission, the sources, quantities and characteristics.
4. To determine the solid wastes, Hazardous wastes generated, Battery Waste, Plastic Waste, etc their sources, quantities and characteristics. and its impact on environment.
5. To identify the possibility of waste minimization, recovery and re-cycling of wastes.
6. To determine the performance of the exiting waste treatment/ control system so as to modify or install additional or alternative control equipment accordingly.

METHODOLOGY:

The purpose of the green audit is to ensure that the practices followed in the campus are in accordance with the Green Policy of the country. The methodology includes: collection of data, physical inspection of the campus, observation and review of the documentation and data analysis.

BRIEF INTRODUCTION OF ORGANISATION:

The Basaveshwar Commerce College, Bagalkot is one of the prestigious institute of Basaveshwar Veerashaiva Vidyavardhaka Sangha, Bagalkot which was founded by His Holiness Shri Gurubasava Mahaswamiji of Bilur in the year 1906, with the opening of a Sanskrit Patashala.
It provided the impetus that propelled a sleepy little town into an Educational, Commercial and Industrial hub of this backward area of Karnataka state.

Main Campus

BASAVESHWAR COMMERCE COLLEGE

The Basaveshwar Commerce College is part of B.V.V.Sangha, which was established in 1970 with 50 students. The college has become predominant in the field of commerce and management education within a span of five decades. Basaveshwar Commerce College is the only independent commerce college in Bagalkot district. At present, nearly 1800 students are studying at the College. The college is offering various courses such as B.Com, B.B.A, M.Com and CA foundation coarse. The college has committed and dedicated faculty by large, it is committed for academic excellence and all-round development of the students. The Alumni of college are serving at their various capacities around the world. Some of them are leading chartered accountants, judicial officers, people's representatives, government officers, and entrepreneurs. In total Basaveshwar Commerce College is one of the outstanding colleges in Karnataka.

Bagalkot, is a city in the state of Karnataka, India, which is also the headquarters of Bagalkot district. It is situated on branch of River Ghataprabha about 481 km (299 mi) northwest of state capital Bangalore, 410 km (255 mi) southwest of Hyderabad, and about 570 km (354 mi) southeast of Mumbai. The population of the urban agglomeration was 111,933 according to the provisional results of 2011 national census of India, and the city is spread over an area of 49.06 square kilometres (18.94 sq mi)[2] with an average elevation of 532 m (1,745 ft) above MSL.

Our Vision

Imparting Excellent Education and Training in Commerce and Business Administration, thereby earning a unique Distinction as Top-notch Commerce Institution in North Karnataka

Our Mission

Basaveshwar Commerce College was established in 1970 with a great mission of imparting professional education in commerce, Business Administration & Management at U.G & P.G. Levels.

The Broad Goal of the college is to respond to the ever-changing needs & expectation of Business Environment and Demands of the community by molding students into accountable citizens, developing a sense of Dedication, Social Conscience and Commitment.

Objectives of organisation

To bring out graduates of excellence, complete character and integrity to venture into right vocations, professions and entrepreneurship.
To harness the students potential through coordinated efforts and personal attention.

CORE VALUE

- Critical thinking and problem solving.
- Leadership.
- Encouraging and building student ability, character and creativity.
- Ethics: We believe in acting with honesty, courage, and trustworthiness.
- We value an institutional attitude and culture that promotes and supports total health and wellness of staff and students.
- Excellence: Maintain a high standard of integrity and performance leading to the achievement of academic and professional goals.

ENVIRONMENT PLEDGE

We, The Principal, staff and students, adopt responsible practices in our days energy use with due regard to the environment. We pledge to avoid using electrical power where not needed. We also pledge to use judiciously the electrical power by using Energy efficient products.
We shall practice to switch off all appliances when not in use.

PURPOSE:
To realistically and comprehensively reduce energy consumption, assure acceptable indoor air quality, and improve energy efficiency on campus through methods that are consistent with a safe, secure, and inviting campus community. As outlined in this policy, Environment conservation will be accomplished by developing a proactive and progressive approach to providing energy efficient, responsible, and cost effective operations on campus. This policy will be reviewed and updated periodically as public awareness, management techniques, and technologies change.

APPLIES TO: Faculty, staff, students, and visitors.

CAMPUS: BVV Sangha's Basaveshwar Commerce College, Bagalkot.
We pledge to speak in open forums for the energy conservation first, Energy Efficiency next and eliminating of High Energy use appliances for better or low energy use one's.
We commit ourselves to the safe operation of all our needs, be it in classrooms, library, canteen, on road, off road, in-campus out-campus as well as at our place of stay.
We adhere to reduce environmental load by efficiently using resources, saving energy, reducing waste, encouraging material recycle, with special emphasize to minimising emissions of greenhouse gases, ozone depleting substance and particle matter. we endure to minimise environmental loads and adopt environmentally friendly technologies when ordering and purchasing necessary products and resources.

We endure to attend educational programs and promulgate our close friends and colleagues to follow suite.

We endure to ensure that we recognize the essence of this Energy use policy by actively and aggressively conducting workshops and training to all in environmental concepts.
We make wide ranging social contribution to close association with the students, teaching staff, administrative staff, housekeeping staff by disclosing Energy use (Star rating appliances) information and supporting minimized consumption of Energy.

ENVIRONMENT, OCCUPATIONAL HEALTH AND SAFETY POLICY

BVV SANGH'S COMMERCE COLLEGE, BAGALKOT in its continual improvement shall be achieving Environmental, Occupational, health, and safety management system by

1. Providing good working condition and healthier environment to all employees
2. Optimum usage of natural resources by reducing, recycling and re using Prevention of pollution by minimizing waste generation and proper disposal of waste generated by all activities
3. Prevention of health and injuries by adopting safe working practices in all operations Comply with all applicable environmental requirements

Basic Activity : Education Activity : Commerce College with B.Com Facility.

Faculty : 58 Number of Students :1650

LAND USE DATA

CATEGORIES OF LAND USE	AREA (m2)
PLANTATION AREA	965 Sq.m
BUILT UP AREA (INCLUDE ROADS)	1350 Sq.m
TOTAL AREA	2315 Sq.m

WATER AND RAW MATERIAL CONSUMPTION AND DISCHARGE

1. Water Consumption - 77,000 Lit /day

2. Raw Material Consumption -

Name of raw material		During current season
a	Papers for office use	35 bundles of 500 A4 size per year
b	News paper	5 news papers per day(Kannada & English)
c	Dry leaves from plants	½ ton per month

3. Pollution discharged to the Environment- 61,600 Lit/day

4. HAZARDOUS WASTES -

[As specified under Hazardous waste (Management & Handling) &Trans Boundary Movement Rules – 2003]

Hazardous Waste	Total quantity
	During current financial year 2021-2023
Used Oil From DG sets & compressors	2 KL/Annum
Any other (Specify)	

SOLID WASTE MANAGEMENT

Objectives of the Program:

The main objective of the solid waste management system in the campus is to promote the Conservation and environment management in the Institute Campus. The purpose of the current Available system is:

To introduce and aware students to real concerns of environment and its sustainability.
To secure the environment and cut down the threats posed to human health by analyzing the pattern and extent of resource use on the campus.

Description of the Program

To achieve effective and sustainable implementation of the proper waste management practices, Awareness with participation is the key to be involved in the Solid and Liquid Waste Management Program of an institution. Some of the common solid wastes obtained include daily Garbage which includes used papers, card sheets, rubber waste, and plastics, cardboard Materials, etc are collected and disposed off. Dustbins are located on various floors at various Locations such as classrooms, libraries, staffroom, administration offices, etc. This separated waste is then Collected by the Municipality garbage collecting van outside the Institute campus. This waste is recycled by the Municipality . Liquid and semi solid wastes mainly consist of wastewater from staff pantry etc. are disposed off through sewage systems having a network of undergroundpipes by Bagalkot Municipal Corporation.

WASTE DISPOSAL:

Waste disposal are the activities and actions required to manage waste from its inception to its final disposal. This includes the collection, transport, treatment and disposal of waste, together with monitoring and regulation of the waste management process.

The waste from all around the college is separated daily as wet and dry waste in different bags which are disposed separately. Dry waste includes paper, cardboard, glass tin cans etc. on the other hand; wet waste refers to organic waste such as vegetable pads, left-over food etc. Separation of waste is essential as the amount of waste being generated today causes immense problem. The material was composted and evaluated as a fertilizing material. Disposal of these waste results in the production of good quality organic manure that can be used as soil amendments and source of plant nutrients.

By reusing or recycling we are contributing to the conservation of natural resources, saving energy, helping to protect the environment, reducing landfill. We will also reduce our impact on the environment by minimizing the carbon emissions associated with both disposing of old products and obtaining new ones. Our Organisation adopts environment friendly practices and takes necessary actions such as energy conservation, waste recycling, trying to be carbon neutral etc. The biological reusable waste are processed as organic manure for the plants available in the college campus and the other solid waste generated in the college campus is disposed to vendors and wherever required pollution control approved vendors

Solid Waste Management systems

Waste Disposal Bins

Organic Waste Management

Green Cover:

Our Organisation is within the geo-position between latitude 16.1834077^{o} N and longitude 75.7046074^{o} E in Northern Karnataka, India. It encompasses an area of about 2315 Sq.m. The area is immensely diverse with a variety of tree species performing a variety of functions. Most of these tree species are planted in different periods of time through various plantation programmes organised by the authority and have become an integral part of the college. The trees of the college have increased the quality of life, not only the college fraternity but also the people around of the college in terms of contributing to our environment by providing oxygen, improving air quality, climate amelioration, conservation of water, preserving soil, and supporting wildlife, controlling climate by moderating the effects of the sun, rain and wind. Leaves absorb and filter the sun's radiant energy, keeping things cool in summer. Many speices of birds are dependent on these trees mainly for food and shelter.

Different species display a seemingly endless variety of shapes, forms, texture and vibrant colours. Even individual trees vary their appearance throughout the course of the year as the seasons change. The strength, long lifespan and regal stature of trees give them a monument – like quality. A thick belt of large shady trees in the periphery of the college have found to be bringing down noise and cut down dust and storms.

It has got extreme climates. The highest temperature is recorded 420 C just prior to the onset of monsoon (around May- early June). Summer rain is normal, and is principally caused from late June to August The climatic condition is suitable for a wide variedly of flora and fauna to support its rich biodiversity.

The city has an average altitude of 808 feet or 246 meters from the average sea level. The climatic conditions bear a strong resemblance with the other cities in the northern part of Karnataka, India. The summers are usually very hot and the winters are cold. The summers are prevalent during the months of February to May and cold season between November to January. There is onset of Monsoon in May end and continues to September.

Ambient Air Quality Monitoring Data

Sl.No	Parameters	Results
01	Respirable suspended particulate matter (PM_{10}) µg/m3	52.4
02	$PM_{2.5}$ µg/m3	36.1
03	Sulphur di oxide µg/m3	4.1
04	Oxides Of Nitrogen µg/m3	6.4

Waste Water Treatment Plant

According to the number of toilets in the college, suitable size of septic tank with soak away is available. A sewage treatment plant is proposed in future.

The institutional initiatives for greening the campus are as follows:

1. Restricted entry of automobiles
2. Use of Bicycles/ Battery powered vehicles
3. Ban on use of Plastic
4. landscaping with trees and plants

Use of bicycles by the students to save energy

CELEBRATION OF WORLD ENVIRONMENT DAY by NSS ON 05-06-21

NSS Volunteers creative work on No Tobacco Day dated 31-05-2021

RAIN WATER DISCHARGE

1. Rain water harvesting
2. Bore well /Open well recharge
3. Maintenance of water bodies and distribution system in the campus

Image showing Rain Water Harvesting in the Institution

Maintenance of water bodies and distribution system in the campus

Health and Safety Awareness Activities:

World AIDS Day Celebration and on its occasion Rally on AIDS/ HIV awareness on 1-12-2017

B.V.V.Sangha's

BASAVESHWAR COMMERCE COLLEGE, BAGALKOT

RED RIBBON CLUB

World Aids Day Celebration

HIV/Aids Awareness Rally held on Dec 01 2017

BASAVESHWAR COMMERCE COLLEGE BAGALKOTE

B.V.V.Sangha's

BASAVESHWAR COMMERCE COLLEGE, BAGALKOT

RED RIBBON CLUB

HIV/AIDS Awareness

RALLY

Date-30-01-2018 Time-11-00am

Venue-Mallapur village

Inauguration by

Prof-Smt.S H.Shettar principal

Chief Guest

Dr.J V.Chavan Co-ordinator IQAC

Guest

Prof M V. Jigabaddi NSS pro-officer

Well-Come to All

Organizer

Dr.M P.Goudaganvi RRC Pro-Officer

BASAVESHWAR COMMERCE COLLEGE BAGALKOTE.

BASAVESHWAR COMMERCE COLLEGE BAGALKOTE.

Mask Awareness Rally on 23-10-2020 by the Principal and staff of Basaveshwar Commerce College

B. V .V . Sangha's
Basaveshwar Commerce
College, Bagalkot
NSS Unit Organization's Covid-
19 awareness Program By
Volunteers..🙏🙏

B.V.V.Sangas

BASAVESHWAR COMMERCE COLLEGE BAGALKOT

RED RIBBON CLUB & YOUTH RED CROSS

*Inauguration of *

Blood Donation Camp

Date-19-03-2018 Time-11-00am

President

Shri .A.M. Sajjan(Bevoor)

Chairman, College Governing Council B.V.V.Sangha,Bagalkot

Chief Guest

Dr.M.M.Salimath

Principal,BVVS Ayured Medical College & Hospital,Bagalkot

Well-Come to All

Organizer

Smt.S H.Shettar Principal

Dr.M P.Goudaganvi .RRC &YRC Pro-Officer

Prof. Smt.G S.Shellikeri.YRC Pro-Officer

Staff and Students,BCCB

BASAVESHWAR COMMERCE COLLEGE BAGALKOT


BASAVESHWAR COMMERCE COLLEGE, BAGALKOT
RED RIBBON CLUB
&
YOUTH RED CROSS
Camp
Date -19-
Rani Channamma University, Vidyasangama
BASAVESHWAR COMMER

Awareness Programme on Yoga on 20-08-2018

CELEBRATION OF WORLD ENVIRONMENT DAY by NSS ON 05-06-21

NSS Volunteers creative work on No Tobacco Day dated 31-05-2021

Overall points to be considered by Management / Staff / Students

1. **Water management – Includes surface water, ground water, rain water harvesting, ground water recharge, ground water quality, and the like**
2. **Energy Management – Energy consumption, reduction in energy consumption, alternatives, solar water / power usage, lighting, ventilation and the like**
3. **Waste Management – Solid waste (Biodegradable / non biodegradable, usage, recycling, dumping, pollution due to solid waste and the like**
4. **Air Pollution – Air pollution due to various reasons, Dust generation, Metalling of roads, green cover all around, indoor air pollution, ventilation and the like**

OBSERVATIONS

Observations are as follows

1. **Proper Water Balance needs to be continuously followed up to know the wastage of water and hence actions to be taken for reduction of wastage of water.**
2. **Waste water treatment plant (Sewage Treatment Plant) needs to be set up with modern technology for least energy consumption and reuse of the treated water in garden thereby reducing water consumption. Presently Septic Tank and Soak pit is the norm which should be discontinued and recycling of water to be introduced. This will reduce pressure on the ground water and can also develop the garden further.**
3. **Vehicle usage may be reduced in the campus which will reduction in CO2 emissions. Similarly pooling of members for vehicle usage will also reduce CO2 emissions.**
4. **Waste management be prioritised. Plastics be sold to plastic dealers and revenue generated. Similarly Paper be sold to paper factories, Waste oil from DG, Glass (if any), etc be sold and revenue generated.**
5. **More detailed study of Tree cover both Flora and Founa needs to be done.**
6. **Additional tree plantation needs to be done which will increase Flora Founa and Oxygen hence redusing Carbon Foot Print. Tree plantation be made a yearly event and type of plants be selected accordingly with the help of your Botany department**
7. **Vehicle usage may be reduced in the campus which will reduce CO2 emissions. EV vehicles may be encouraged. Similarly pooling of members for vehicle usage will also reduce CO2 emissions.**
8. **Energy wastages need to be arrested and switch over to well lighted buildings or LED usage (completed). To Change in phased manner the non energy efficient fans to energy efficient fans.**
9. **Saving of energy to be assessed and targets fixed YOY**
10. **Energy Audit to be followed with Energy Conservation e.g switching off lights and fans when not being used.**
11. **For Power factor improvement capacitor bank to be provided**
12. **Battery related improvements - Like ventilation, maintenance etc. Battery be given back to manufacturers only whenever replaced with proper discounts taken for the existing batteries.**

13. **Insulations to be checked across the campus and improvements to save energy**
14. **Illumination in rooms to be taken up to save energy.**
15. **Battery related improvements - Like ventilation, maintenance etc. Battery be given back to manufacturers only whenever replaced with proper discounts taken for the existing batteries.**
16. **Metalling of some of the roads need to be done for Air pollution which may occur especially during winter season.**
17. **Rain water harvesting to be taken up on serious footing. A proper storage pond or tank be constructed to store rain water and use back into college and / or construct recharge pits. This will also decrease the load on ground water and recharge the ground water. Recycling of water to be made a part of the environment mission**
18. **Signage's be put across the whole of campus (Safety, Environment, Botanical names, etc)**
19. **Next Audit, Carbon Foot print to be included and reduction of Carbon Foot Print to become a goal of the Organisation**

ACTION PLAN SUMMARY:

- Make an action plan both short term and long term.
- Execute plan as pe schedule. Invite subject experts if required,
- Organize in person panel discussions and interaction to propagate the knowledge of energy conservation and mitigation.
- Prioritize the initiatives and execute.
- Observe and record the benefits and shortcomings.
- Workout further improvement by involving the staff and students.

AUDITED TEAM AND THEIR CREDENTIALS

DR KRISHNA N KULKARNI BE(Chem), MTech (Chem), PhD (Geology)

Environmental Expert

In the Environmental Field for the last 25 years having completed many Audits of Colleges, Industries and their compliances as per Ministry of Environment, Forests and Climate Change, New Delhi. Also an expert in Design, Execution and Operations of Waste Water Treatment Plants

Shri Ramesh Upadhye B.Tech (Electrical Power)

Electrical Expert

Former employee at POWERGRID (Central Government) and been in the field of Academics and Electrical Audits. Experience of more than 35 years

Shri Shrikantha Joshi BE(Civil)

Civil Engineering Expert

Expert on design of Buildings, Audits in Civil engineering area. Experience of more than 25 years

Shri Kallappa Udhoji

Bachelor in Science (Chemistry)

Formerly QA / QC Head - Lab Division, ADM Oil Industries. Analytical Expert and Incharge of Nichrome Testing Laboratory and Research Pvt Ltd Lab Section. Experience of more than 30 years

Organisation : M/s Nichrome Testing Laboratory and Research Private Limited

Address : 170, 2nd Main Road, Narayanpur, Dharwad - 580008. Email : nicechem@gmail.com

Recognitions and Certifications :

- **NABL Accredited,**
- **MoEF & CC / CPCB Recognised,**
- **ISO 9001 : 2015**
- **ISO 45001 : 2018 Certified**
  (Certificates Enclosed)