GREEN AUDIT REPORT

FOR THE YEAR 2021-22

S.P.V.V.S.S.

G.P. PORWAL ARTS, COMMERCE & V.V. SALIMATH SCIENCE COLLEGE, SINDGI – 586 128

Principal Lead Auditor:

Mallikarjun A Kambalyal.

Regd India: CEA, EA-3485, ISO 50001, 14001 Lead Auditor.

Germany Energie Berator: Anbieter-Nr 1041388

Mauritius : REA-57

Audited by:

SUNBSHUBH TECHNOVATIONS PVT LTD.,

120-2, LGF, 'A' wing, IT Park,

Hubli – 580029. Karnataka. India.

Germany off: Neuer Weg 166, 47803 Krefeld, Dusseldorf. Germany

Contents

OVERVIEW OF GREEN AUDIT.

The main objective of the green audit of educational institutions is to self-assess the performance of the institution on its contribution to the society. The Educational institutes are primarily responsible to create awareness on various avenues apart from literacy.

Literacy and subject knowledge may enable the student to know various fields in education however the application of the information gained in the class room should transcend into societies growth, that is what is expected of present day education. The need for green audit is no more a misnomer. With Energy Audit, Environment Audit and Green audit having been separated, the message is clean and clear that the objective or the intent is to identify the contribution of the institute in positive growth of the society.

The green audit creates a platform to evaluate how the student ends up at the end of the educational curriculum. The readiness to transact the information gained into usable knowledge is vital for the student to be a responsible citizen.

In order to create such an environment, the institute should establish itself as an equal opportunity platform. Where the differently abled children, girls and boys get equal opportunity to exercise their skills.

The institutes outreach to extended organisations such as business associations, social clubs and other governmental executive bodies is significant. Inviting resource personal of varied expertise to interact with students and understand the outside world, various avenues open for employment, pros and cons of venturing out on oneself help in building confidence among the children.

Creating awareness on various government schemes enabling self-employment is also a significant change maker.

Thus, the objective of GREEN AUDIT is very vast and expanding.

ACKNOWLEDGEMENT

SUNSHUBH TECHNOVATIONS PVT LTD is pleased to express its sincere gratitude to the management of **S.P.V.V.S.S. G.P. Porwal Arts, Commerce & V.V.Salimath Science College, Sindgi.**

for entrusting Sunshubh Technovations Pvt Ltd with the assignment on Green Earth practices based on Educate, Practice, Advocate & Manage the resources in their educational organization.

We also wish to thank Shri D.M.Patil, Principal, and Dr M.I.Minch, NAAC Audit Co-Ordinator and Criterion VII Chairman, who have been constantly following with the Carbon Handprint initiatives 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 Members,

IQAC Co-Ordinator - Prof. D.M. Sarashetti

Shri V.R.Patil. Criterion 1 – Curricular Aspects

Dr. P R Rathod. Criterion II – Teaching, Learning & Evaluation.

Shri R.V.Lamani. Criterion III –Research, innovation & Extension.

Shri R.V.Gola. Criterion IV –Infrastructure & Learning Resources.

Dr. S.I.Bhandari. Criterion V – Students Support and Progression.

Smt S.S.Muttinpendimath. Criterion VI – Governance, Leadership & Management.,

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.

EXECUTIVE SUMMURY.

Sr No	Observation*	Problems*	Resulting losses*	Remedial measures*	Capital*	Projected savings*
1	Differently abled children.			Committee to monitor and arrange the basic needs like commutation, sitting arrangements, washroom for these special children.		
2	Girl children			To provide safe and dignified study time by providing health safety provisions in the campus.		
3	Green Commute			To promote green commute within the campus and also outside the campus.		
4	Green energy concept			College has kickstarted an initiative of lab testing the Solar thermal energy (Fresnel concentrating solar)		
5	Rain Water Management	No serious water problem seen	Future shortage of water	Perforated Pavers and water management system.	Yes, Capital intensive	Improved quality of water and high yield. Calls for reduced pumping hours.
6	Solid Waste Management	Spilling of waste	Dirty used packages in and around the college	Incorporate need for cleanliness and place waste collection bins.	Rs.4500/- per set	Reduced cleaning hours and good hygienic conditions.
7	Health Hazard	Sanitary pads disposal provision.	Open area disposal	Incinerator placed at convenient point.	Rs. 10000/- to 15000/-	Clean and safe health.

8	Natural Lighting	Un cleaned windows and ventilators, Forced switching on of tube lights	High energy bills	Clean the window panes and allow maximum natural light penetration.	Nil, In house manpower.	Substantial cost of energy bills on lighting.
9	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

GREEN AUDIT COMPLETION CERTIFICATE

I, Mallikarjun A Kambalyal, endorse and confirm that the GREEN Audit has been carried out on 21st Feb 2022 under the instructions of Shri D.M.Patil, Principal, and Dr M.I.Minch, NAAC Audit Co-Ordinator and Criterion VII Chairman and IQAC Co-Ordinator - Prof. D.M. Sarashetti

This report is generated based on the site visits and evidence collected from the site and this completion certificate is issued in compliance with *Criteria* 7.1.6.

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

This report is tabled in two parts. The first forms the core discussions which are subject specific under the statutory requirements of the NAAC accreditation norms. The second section is general in nature.

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.

Date: 26TH Feb 2022

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			

Bureau of energy Efficiency Regd No: EA3485

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 Stoilova

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

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

121807

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

Green audit objectives.

Know, Why? Where? What? When? How? about the audit & the objectives….

Green audit focusses on the net outcome of energy audit & environment audit. The major focus is on how the students carry over the learnings to the society and

Carbon Footprint 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 Carbon Footprint 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 outflow.

Through Carbon Footprint 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 Carbon Footprint audit. Incidents like the 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+", or Grade "A++"…, according to the scores assigned at the time of accreditation.

The other intention of organising Carbon Footprint audit is to update the environment conditions in and around the institutions i.e., 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 Carbon Footprint audit.

The purpose of carrying out Carbon Footprint 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 organisations utilising minimum natural resources and efficient use of those resources contributing to minimum waste generation.

How is the Carbon Footprint 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 Carbon Footprint audit

Water audit: Water is one of the cheapest commodities 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 audit or 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 resources 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 components of Carbon Footprint Audits are 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 Carbon Footprint 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 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 build better relation-

ships with the group's 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.

DAY's CARBON HANDPRINT PLEDGE

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

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 Energy 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

Vision Statement of the institute

Core Values of the Institution

http://www.grgayapcci.org/index.php

Vision

To provide advancement of knowledge, education and research fostering an equitable and productive growth in the complex global society.

Mission

To provide quality education to the rural Learners and to bring out in totality their innate potential for the overall wellbeing of the society.

Objectives

To bring out graduates of character and competence capable of undertaking any profession and vocation. To activate the students Potential through personal attention and other allied efforts. To inculcate that knowledge alone will lead to prosperity and peace.

Goal

To see the overall developments of the students physically, mentally, culturally and spiritually sound and convince to withstand challenges in the age of information and technology

Affiliation

Affiliated to Rani Channamma University, Belagavi

About the College

S.P.V.V.S.S. G.P. Porwal Arts, Commerce & V.V. Salimath Science College, Sindgi.KARNATAKA is located in a small town educating the rural children of nearby villages.

The college has Arts, Commerce and Science stream.

The upkeep of the campus speaks for their concern to the environment. With few corrective measures the college can consider to move towards being CARBON NEUTRAL.

DAY's CARBON HANDPRINT PLEDGE (proposed)

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

We, The Principal, staff and students, adopt responsible practices in our day's 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: **S.P.V.V.S.S. G.P. Porwal Arts, Commerce & V.V.Salimath Science College, Sindgi.** Karnataka

ABOUT AUDIT ASSIGNMENT:

S.P.V.V.S.S. G.P. Porwal Arts, Commerce & V.V. Salimath Science College, Sindgi. Karnataka has asked SUNSHUBH TECHNOVATIONS PVT LTD, Hubli, to conduct the Green Audit for their Institution.

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

SUNSHUBH TECHNOVATIONS PVT LTD, Hubli, 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.

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

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.

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.

GREEN AUDIT - Observations/Recommendations.

The institute has many short comings in meeting the requirements of the Physically challenged people. The college to setup a committee on immediate basis and come up with the action plan.

The check list is enclosed for compliance in line with the NAAC requirements under the 7th Criteria.

Disabilities for Differently Abled.

This section needs to be self-evaluated by constituting an internal team.

The corrective measures would take time but a move towards the implementation would be appreciated.

NAAC co-ordinating team may please look into the aspects and act.

Need to form an inhouse committee on making the campus disabled friendly. A clear task is necessary and the required check list is presented for compliance.

Before we conduct check on compliance,

A Brief note on Green Audit.

Please refer to http://www.disabilityindia.co.in/ for more information.

The green audit primarily lays focus on Energy use, its impact on environment and remedial measures.

It is equally focused on ways of making life of differently abled persons easy and readily adoptable to changing working environment.

Every citizen has to feel self-sufficient on economic front and self-reliant on meeting his daily chores.

While we have discussed elaboratively on Energy and Environmental aspects in the connecting audit reports, let us understand how we can focus on making differently abled life more meaningful Thus, the special focus.

In order to develop awareness in the higher education system and also to provide necessary guidance and counselling to differently-abled persons, it is expected that the Institutes

Facilitate admission of differently-abled persons in various courses.

Provide guidance and counselling to differently abled individuals.

Create awareness about the needs of differently abled persons and other general issues concerning their learning

Assist differently-abled graduates to gain successful employment in the public as well as private sectors.

THE MAJOR FUNCTIONS OF THE INSTITUTION SHOULD BE,

To provide counselling to differently - abled students on the types of courses they could study at the higher education institutions.

To ensure admission of as many differently-abled students as possible through the open quota and also through the reservation meant for them.

To gather orders dealing with fee concessions, examination procedures, reservation, policies, etc., pertaining to differently-abled persons.

policies, etc., pertaining to differently-abled persons.

To assess the educational needs of differently abled persons enrolled in the higher education institutes to determine the types of assistive devices to be procured.

To conduct awareness programmes for teachers of the institute about the approaches to teaching, evaluation procedures, etc, which they should address in the case of differently-abled students.

To study the aptitude of differently-abled students and assist them in getting appropriate employment when desired by them after their studies.

To celebrate important days pertaining to disability such as the World Disabled Day, White Cane Day, etc., in the institute and also in the neighbourhood in order to create awareness about the capabilities of differently-abled persons.

To ensure maintenance of special assistive devices procured by the higher education institute under the HEPSN scheme and encourage differently-abled persons to use them for enriching their learning experiences.

To prepare annual reports with case histories of differently-abled persons who are benefited by the HEPSN scheme sanctioned to the higher education institute.

Providing Access to differently-abled persons

It has been felt that differently-abled persons need special arrangements in the environment for their mobility and independent functioning. It is also a fact that many institutes have architectural barriers that disabled persons find difficult for their day-today functioning. The colleges are expected to address accessibility related issues as per the stipulations of the Persons with Disabilities Act 1995, and ensure that all existing structures as well as future construction projects in their campuses are made disabled friendly. The institutes should create special facilities such as ramps, rails and special toilets, and make other necessary changes to suit the special needs of differently-abled persons. The construction plans should clearly address the accessibility issues pertaining to disability. Guidelines on accessibility laid out by the office of the Chief Commissioner of Disabilities.

Providing Special Equipment to augment Educational Services for Differently abled Persons

Differently-abled persons require special aids and appliances for their daily functioning. These aids are available through various schemes of the Ministry of Social Justice and Empowerment. In addition to the procurement of assistive devices through these schemes, the higher education institute may also need special learning and assessment devices to help differently-abled students enrolled for higher education. In addition, visually challenged students need Readers. Availability of devices such as computers with screen reading software, low-vision aids, scanners, mobility devices, etc., in the institutes would enrich the educational experiences of differently-abled persons. Therefore, colleges are encouraged to procure such devices and provide facility of Readers for visually challenged students.

Internal audit guidelines.

Audit Process

This section discusses the planning and implementation of the actual audit. The planning for the audit should cover:

The core audit team

Media management

Overall coordination

The Core Audit Team

The audit team should assemble outside the venue in advance to discuss the process of the audit.

The attendance sheet should be signed by all the members of the assembled team.

The team members should know the parts of the building they are to audit.

The appropriate part of the audit checklist should be used for each section of the building audited. It is important to address each item of the checklist.

The group should assess the area taking all kinds of disability into account.

The photographer must be briefed and be guided by a member of the core audit team.

The results of the different parts of the audit must be compiled.

The audit team should meet the authorities of the organization, with the media, to inform them of the findings of the audit and submit a representation. The team must get a commitment to incorporate the changes necessary to make the building disabled-friendly.

Media Management

The media members should be asked to assemble at one place from where they will be transported to the venue of the audit or they should assemble at the site of the audit. A person must be appointed to coordinate with the media. A press briefing should be held and the media provided with a press kit. The media must be invited to join the team when it submits its representation to the head of the organization.

Overall Coordination

Since the audit process involves many people, a well-defined programme for the audit has to be drawn up. The following must be kept in mind:

A schedule. A person should be nominated to monitor adherence to the planned programme.

A designated Coordinator for overall synchronization of the audit goals

The following items must be carried by the audit team:

copies of the audit checklist

pens and hard boards

attendance sheets

copy of The Disability Act, 1995

awareness materials

copy of the representation to be submitted to the organization audited

press kits

Post Audit Reporting And Follow-Up

The reporting of the audit is in 2 parts:

Report on the building being audited, for submission to the organization which houses the building; and

Complete report containing all the details relevant to the entire audit exercise.

Reports To Be Submitted To The Organization Audited

The data collected during the audit must be compiled and a report must be prepared. The report would be based on the following points:

name of the place audited

date of the audit

members of the audit team

observations on the areas audited, and the main conclusions of the audit

suggestions for short-term and long-term improvement, based on the CPWD guidelines

follow-up guidelines

A time-frame can be suggested for adopting the suggested changes. This report must be handed over to the audited organization, with a letter of appreciation for courtesies and cooperation extended, a copy of the completed audit checklist used to audit the institution and a copy of the relevant CPWD guidelines (sample formats)

Report Of The Access Audit Project

A report of the audit itself must be drawn up. It should include the aims, the details of the audit process, i.e., the pre-audit preparation, the process itself and the post audit reporting and follow-up, including the results of the audit and suggestions for improvement, which have been made. The report should include photographs and copies of news clippings of the audits. This report must be archived for future reference and follow-up action.

Brief Description Of The Essentials Of A Building That Are Evaluated

Entrances/Exits

The main entrances and exits of buildings must be clearly identifiable and easily accessible. They must be wide enough to accommodate wheelchair users. Steps and ramps must have hand railings of contrasting colours.

Building should have automatic sliding doors. In multistorey buildings, the entrance should permit access to a conveniently located elevator. Emergency exits should be easily identifiable and accessible.

Parking

Parking for people with disabilities should be available near the building. IT should be accessible to cross-disability groups equally. Accessible indoor parking spaces should be located closest to the elevators and within 50 metres of building entrance. The parking slots reserved for people with disabilities should be marked with the international symbol of accessibility. There should be procedures in place to make sure that non-disabled people do not use parking spaces reserved for people with disabilities. Drop off areas should be marked by a well-defined signage system and an accessible travel path from this area to the building should be available.

Ramps

Complementary ramps should be available next to stairs. The gradient of ramps should allow easy use by wheelchair users. Appropriate landings should be available and the ramps should be wide enough for use by wheelchair users. Ramps surfaces should be slip-resistant and clear of obstacles. They should be protected on both sides. Ramps should be marked with the international symbol of accessibility.

Elevators

Elevators should be easily accessible and identifiable. The doors should be wide enough to accommodate wheelchair users and the space inside should be sufficient for them. Elevators should have handrails of contrasting colours on three sides and be at appropriate heights. Visual and audible signals indicating the arrival at different floors should be available. Emergency intercoms should be usable without voice communication in emergencies. Tactile/ Braille instructions should be provided for the communication systems.

Stairs

Stairs should be easily accessible and identifiable. The minimum width of the stairs should be wide enough and the landings have enough space at the top and bottom. The stair surfaces and nosing should be slop resistant. Handrails should be provided for staircases.

Corridors

The minimum unobstructed width of corridors should be wide enough for wheelchair users and should allow manoeuvring through doors along the length of the corridor. The corridors should have guiding blocks along its length.

Washrooms, Toilets And Bathrooms

Separate toilets should be available for people with disabilities. They should be clearly identifiable and accessible. The doors should be wide enough and should be lockable from inside and releasable from outside. There should be enough manoeuvring space inside. All floor surfaces should be slip resistant. Mirrors, flushing arrangements, dispensers and toilet paper should be mounted at appropriate heights. They should be equipped with alarm systems for emergencies.

Public Telephones

There should be at least one telephone accessible to wheelchair users and should be equipped with hearing aids. The numbers should be embossed to allow easy identification. The coin slots should be at appropriate heights.

Counters

This includes reception counters, ticket counters, cash counters and administration counters. Counters should be easily identifiable and accessible to wheelchair users. Counter staff should be able to communicate with persons with hearing and visual disabilities.

Drinking Water Facilities

They should be easily accessible and the fountain head accessible to wheelchair users.

The area around the fountain should be dry to prevent falls. Glasses should be provided at drinking water facilities. The taps should be easily manoeuvrable.

Eating Outlets

Accessibility of eating outlets for people with various kinds of disability must be assessed. Tables, service counters and cash counters should be at appropriate heights. There should be enough place inside for easy movement by wheelchair users. A menu card should be available in Braille. Facilities should be available for people with speech impairment to place orders.

Audit Of Specific Areas Of Buildings

Some buildings have areas specific to them and different aspects must be looked when auditing them.

Hospitals

Patients have to visit the examination and sample collection rooms of hospitals and may get admitted to wards in them.

Examination Rooms

Examination rooms should be easily identifiable and accessible. The examination tables should be of the right size and height.

Sample Collection Rooms

Sample collection rooms should be easily identifiable and accessible. The rooms should be large enough to enable easy mobility within them. The toilets attached to sample collection rooms should be east to use. The sample collection tables should be easily accessible.

Wards

Wards should be easily identifiable and accessible to people with different disabilities. Space in wards should allow easy mobility by wheelchair users. All fixtures should be at accessible heights. They should be obstacle free. Guiding lines should be available for people with visual impairment.

Banks

All counters should be easily identifiable and accessible. Counters should be at appropriate heights. The staff at the counters should be to communicate with people with hearing impairments. The manager's office should be easily identifiable and accessible. Various forms should be placed at accessible counters and space should be available for the clients to fill the forms easily.

Automatic Teller Machines (ATM) should be easily accessible to clients with various types of disability. They should be placed in areas, which allow mobility for wheelchair users. They should be slip resistant and have grab bars.

Hotel Rooms

At least one room easily accessible should be located on the ground floor to enable rapid evacuation in case of emergencies. The room should be equipped with an alarm system. All fixtures and controls should be at accessible heights. The space in the room should allow mobility for a wheelchair user. The windows should allow unobstructed viewing for wheel chair users. Room facilities, like phones, fire alarms, wake-up alarms, etc., should be accessible to people with different disabilities.

Cinema Halls

Tickets counters and the hall should be easily accessible. Specific seats should be allocated to wheelchair users.

Government Offices

The public areas should be accessible to people with different disabilities. The counter staff should be able to guide people with different disabilities. Letter boxes should be accessible.

Historical Sites

The site details should be available in Braille. Trained guides should be available for people with different disabilities. Shops should be accessible.

The Disability Access Audit Checklist

The disability access audit checklist includes details that have to be looked into for carrying out a disability access audit. They must be completely and accurately filled out to carry out a meaningful audit.
The checklist has been divided into two parts. Part 1 (A to K) is for areas common to all buildings audited, while Part 2 (L to Q) deals with areas specific to locations, like banks, cinema halls, etc. It is non-exhaustive and should be adapted to specific needs.
The checklist must be filled in by answering **" yes ", "no",** or " **not applicable** " to the questions. Observations made in the remarks column during the audit will determine how disabled friendly a location is.

Indicative In-house check list for disabled friendly persons.

Check list for Compliance

DISABILITY ACCESS AUDIT CHECKLIST		
Date of audit:		
Staff In charge		
Department:		
Audited by (organization):		
General Remarks & Suggestions:		
Name of the team leader and Signature		
A	ENTRANCE	
1	Before main entrance	
(i)	Are there steps?	Yes/No*. If yes, how many?
(ii)	Does the steps have railings?	Yes/No*. If yes, one/both sides?
(iii)	Is there a ramp? Does the ramp have railings?	Yes/No*
(iv)	Does the ramp have an edge protection?	Yes/No*. Width?
2	Main Entrance	
(i)	Is the width of the entrance greater than or equal to 900mm?	Yes/No*. Width?
(ii)	Type of door	Automatic/Swing/Sliding*
(iii)	Type of door handle(if applicable)	Lever/Knob*

(iv)	Is the height of the door handle be-tween900mm-1100mm?	Yes/No*. Height of Kerb:
(v)	Is there a kerb at en-trance?	Yes/No*. Gradient:
(vi)	Is there a kerb ramp?	Yes/No*.
(vii)	Is there the Interna-tional Symbol of Ac-cess (Disabled Logo) displayed?	Yes/No*.
3	Side Entrance	
(i)	Location (e.g., along Haig Road) (if there is more than one loca-tion, please specify all)	Yes/No*. If yes, location at
4	Side Entrance	
(i)	Is the width of the en-trance greater than or equal to 900 mm?	Yes/No*. Width:
(ii)	Type of door	Automatic/Swing/Sliding*
(iii)	Type of door handle (if applicable)	Lever/knob*
(iv)	Is the height of door handle between 900 mm - 1100 mm?	Yes/No*. Height of kerb:
(v)	Is there a kerb at en-trance?	Yes/No*. Gradient:
(vi)	Is there a kerb ramp?	Yes/No*.
(vii)	Is there the Interna-tional Symbol of Ac-cess (Disabled Logo) displayed?	Yes/No*.

5	Is side entrance accessible to the wheel-chair-users?(Please use section A2 as a guideline).	Yes/No*. If no, give details:
6	Is the accessible entrance clearly identifiable?	Yes/No*. If no, give details:
7	Is the entrance wide enough?	Yes/No*. If no, give details:
8	Is the door a push-open door?	Yes/No*. If no, give details:
9	In multi-storey buildings, does the accessible entrance permit access to a conveniently located elevator?	Yes/No*. If no, give details:
10	Is the entrance landing area sufficient?	Yes/No*. If no, give details:
11	Is the entrance landing easily identifiable?	Yes/No*. If no, give details:
12	Are there tactile landing areas free of obstacles?	Yes/No*. If no, give details:
13	Is the entrance landing area free of obstacles?	Yes/No*. If no, give details:
14	Are emergency exits easily accessible?	Yes/No*. If no, give details:
B	CAR PARKING	
1(i)	Is there a parking lot for the disabled person within the building?	

(ii)	Are there accessible parking facilities?	Yes/No*
(iii)	Are indoor parking spaces located closest to accessible elevators	Yes/No*
(iv)	Are accessible parking spaces within 50 meters of building entrances?	Yes/No*
2	If yes, how many are there and state location where these can be found (e.g., Basement 1, lot#112, near lift)	Yes/No*. If yes, location at
3(i)	Is there the International Symbol of Access (Disabled Logo) printed on the parking lot	Yes/No*.Size of logo: Yes/No*.If yes, describe signboard used:
(ii)	Is there a vertical and visible signboard indicating that the lot is for the disabled driver?	Yes/No*.Size of logo: Yes/No*.If yes, describe signboard used:
4	Are there directional signs within the parking lot to indicated the location of the parking lot for the disabled person?	Yes/No*.
5	Size of parking lot.(Min. Size: 4800 mm x 3600 mm)	Dimension:
6	Please provide information on accessibility from the parking lot to the lift lob-	Please tick on the box and delete accordingly for the following: There is kerb/no kerb at the Entrance of

	by/building entrance.	the lift lobby. There is a kerb ramp at the Entrance of the lift lobby. Gradient: There is a swing/automatic/ Manual* door leading to the main building Width of door entrance is at least 900 mm wide Width: Corridor width is at least 1200 mm wide Width: Width of lift door is at least 900 mm wide Width: State the type of flooring used:
C	Taxi Stand	
1	Is there a taxi stand at the building? If yes, please state the location (e.g., at the main entrance)	Yes/No*. Location:
2	Is there a kerb at the taxi stand?	Yes/No*.
3	Are these one/two kerb ramps for boarding and alighting the taxi?	One/Two* Kerb Ramos Ramp for Boarding. Yes/No*. Ramp for Alighting. Yes/No*.
D	Lift	
1(i)	Is the lift accessible to every floor?	Yes/No*.
(ii)	Is there an accessible path leading to the elevator?	If no, please specify which floor(s) the lift stops on:
(iii)	Is the elevator door easy to identify?	If no, please specify which floor(s) the lift stops on:
2	Is the clear door opening width more than 900 mm?	Yes/No*. Width:
3(i)	Is the height of the call button (outside	Yes/No*.

	the lift) between 900 mm-1100 mm?	Height between:
(ii)	Is the space inside the elevator enough?	Yes/No*. Height between:
4	Is there an audio system installed (talking lift) for the lift?	Yes/No*.
5	Are there Braille/raised (for the visually impaired persons) numbers used on the control panel?	Yes/No*. Height between:
6	Is the control panel placed at a height of between 900 mm - 1200 mm from the floor level	Yes/No*. Height between:
7(i)	Are there grab bars inside the lift?	Slides: Yes/No*.
(ii)	Are the doors and handrails of the elevator of contrasting colour?	Slides: One/Both* Rear: Yes/No*.
8	Are the grab bars placed at height of 900 mm from the floor?	Yes/No*. Height:
9	Is the emergency intercom usable without voice communication?	Yes/No*.
10	Is the door opening/closing interval long enough?	Yes/No*.
11	Is the floor of the elevator non-slippery	Yes/No*.
E	Public Telephone	

1	Are there public telephones for the disabled person. If yes, provide location (e.g., level 1,2)	Yes/No*. Location:
2	Is the height of the operable parts (highest and lowest) of the public Phone between 800 mm-1200mm	Yes/No*. Actual height between:
3	Is there a clear knee space of more than 680 mm	Yes/No*. Actual clear knee space:
4	Is there at least one telephone equipped with hearing aids?	
5	Are the numerals on the telephone raised to allow identification by touch?	
6	Is the coin slot mounted at an appropriate height?	
7	Are accessible facilities identification?	
F	Counters	
1	Is the counter easily identifiable?	
2	Is the level of the counter accessible?	
3	Is the staff able to communicate with people with visual, hearing and speech impairment?	
4	Is the staff supportive	

	to mentally-challenged clients?	
G	Public Toilets	
1(i)	Are there separate toilets for the disabled person? Is the accessible toilet identified by a sign?	Yes/No*.
(ii)	Is the entrance to the public toilet accessible to people with disabilities?	Yes/No*.
(iii)	Is the width of the door wide enough?	Yes/No*.
(iv)	Is there enough manoeuvring space in the toilet?	Yes/No*.
2	Are the toilets for the disabled person available on every floor?	Yes/No*. If no, specify on which floor they are available
3	What type of toilets is provided?	Individual/Compartment/Both*
4	Are the measurements of the toilet for the disabled person the same (if there are more than one toilet?	Yes/No*.
5	If the toilets for the disabled persons are different from one another, please complete separate copies for each toilet surveyed Sketch toilet surveyed (include door, water closet, wash basin, door and grab bars)	State location of toilet checked Please tick on the box and delete accordingly for the following Individual washroom/compartment * Individual washroom: Have clear dimensions between opposite walls of not less than 1750 mm. Actual dimension: mm x mm

		Water Closet Compartment Have clear dimensions of not less than 1500 mm by 1750 mm Actual dimension: mm x mm Door width more than 900 mm Actual width: No kerb/kerb ramp* at the Entrance to the toilet. If there Is a kerb ramp, the gradient is: Door handles are located: Inside/Outside/Both sides* Door opens outwards / inwards* Door is a swing / folding / sliding* door One horizontal grab bar is mounted at a height of between 280 mm and 300 mm from the top of the water closet seat and one horizontal grab bar is mounted on the side wall closet to the water extending from the rear wall to at least 450 mm-in-front of the water closet seat. Actual height: Actual height: Water basin has a clear knee Space of at least 750 mm wide by 200 mm deep by 680 m high with an additional toe space of at least 750 mm wide by 230 mm deep by 230 mm high. Actual clear knee space: (W) x (D) (H) Water closet is located between 460 mm - 480 mm from the centreline of the water closet to adjacent wall. Actual distance: Clear dimension of 750 mm from the front edge of the toilet bowl to the rear wall. Actual distance: The passage way leading to the cubi-

		cle is at least 900 mm. Actual width:
6	Is there at least one accessible shower?	
7	Are grab bars installed in bathtubs and showers at an appropriate height?	
8	Are accessible showers equipped with shower seats?	
9	Are the grab bars slip resistant?	
10	Can grab bars withstand load?	
11	Is the mirror at an appropriate height?	
12	Is the rest room equipped with an alarm system accessible to people with different disabilities?	
13	Are flushing arrangements, toilet paper and other dispensers mounted at an appropriate height?	
14	Are flushing mechanisms easy to operate?	
15	Are the doors lockable from inside and released from outside in emergency situations?	
H	Drinking Water Facility	

1	Is the water tap easily accessible?	
2	Can it be easily manoeuvred by a person with poor hand function?	
3	Is the area dry?	
4	Are glasses provided?	
I	Cafeteria	
1	Is there an eating outlet located within the building?	Yes/No*. Location
2	Is the eating outlet generally accessible to the disabled?	Yes/No*.
3	Is there a circulation path/passageway of at least 900 mm wide to allow the wheelchair user to move around the eating outlet and order their food?	Yes/No*.
4	Is there a table reserved for the disabled?	Yes/No*. If no, give details of seating arrangements:- Height of table-top not higher than 800 mm with a minimum clear knee of 700 mm x 480 mm deep. If no, provide Measurement: Table-top: Clear knee space: x Table with fixed stools/chairs Table without fixed stools/chairs
5	Are there directional signs to lead the disabled person to the reserved table?	Yes/No*.

6	Is there enough leg clearance space below the table?	Yes/No*.
7	Is the height of the table appropriate?	Yes/No*.
8	Is the height of the cash counter appropriate?	Yes/No*.
9	Is there a menu card available in Braille?	Yes/No*.
10	Is there a facility for a person with speech impairment to be able to pace an order?	Yes/No*.
11	Do the tables have straight legs?	Yes/No*.
J	Staircase	
1	Applies to flights of steps Check the following:	State where the staircase is located:
2	Are there handrails	Yes/No*. If yes, one/both sides
3	Height of hand rails between 800and 900 mm from the floor	Yes/No*.Actual height:
4	Are the handrails continuous	Yes/No*.
5	Is there a levelled platform at the top and bottom step extending not less than 300 mm (with railing)	Levelled platform: Yes/No*. Extended railing: Yes/No*.
6	Steps specifications	Uniform riser: Yes/No*.Open Riser: Yes/No*.Height of risers: Protruding nosing: Yes/No*.

7	Is the minimum width of the stairs enough?	
8	Is the landing space at the top and bottom of the stairs enough?	
9	Are the stair nosing slip-resistant?	
10	Is the location of the stairs clearly identifiable?	
11	Is a handrail installed?	
12	Do the stairs have guide strips?	
K	Slop Ramps	
	Applies to slope ramps Check the following:	State where the slope ramps are located:
1	Are there handrails	Yes/No*. If yes, one/both sides
2	Height of hand rails between 800 and 900 mm from the floor	Yes/No*.Actual height:
3	Are the handrails continuous	Yes/No*.
4	Is there a levelled platform at the top and bottom ramp extending not less than 300 mm (with railing)	Levelled platform: Yes/No*.Levelled railing: Yes/No*.
5	Is the width of the ramp at least 1200 mm	Yes/No*.Actual width:
6	Ramp landings are provided at regular intervals of not more	Yes/No*.Length of horizontal run:

	than 9000 mm of every horizontal run	
7	Is an edge protection available	Yes/No*.
8	Type of flooring used	Specify:
9	Describe the condition of the flooring	e.g., levelled, tiles popping up, uneven surfaces
10	Are grafting found in the open area	Yes /No*
11	Are the gratings covered?	Yes/No*
12	Are grating placed across the dominant placed across the dominant of travel	Yes/No*
13	Is the width of spaces found between the grating strips less than 12 mm	Width:
	General description of accessibility within the premises	Paths to various locations of Attractions are easy and Accessible.
		Not quite accessible, there are Many obstacles such as
		Quite accessible but there are Steps (manageable).
		Inaccessible in most areas. (please specify)
L	Corridors	
	Is the minimum unobstructed width of the corridor wide enough	

	for wheelchair users?	
	Does the corridor width allow manoeu-vring through doors located along its length	
	Does the corridor have guide strips?	
	Is the corridor path-way obstruction-free?	
	Any other comments:	
	Name of Facilitator(s): Name of Surveyor(s):	

Green Pledge templet.

CARBON HANDPRINT - GREEN PLEDGE

CARBON HANDPRINT is a way to conserve our energy resources, keep the environment clean, follow eco-friendly measures and physically challenged and specially skilled personal's manoeuvrability friendly.

We the Principal, the 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 in front, backyard and all other non-approachable areas of all primary and secondary pollutions.

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
J.N. Medical College, KAHER,
Belagavi, Karnataka, India

Gender equality and dignified space.

Green Earth Practices (Audit) in the College campus.

https://co2living.com/reduce-carbon-footprint-by-cycling/#:~:text=Cycling%20is%20usually%20a%20low,how%20bike%20commuting%20can%20help.

REDUCE MY CARBON FOOTPRINT

Reduce Carbon Footprint by Cycling

Cycling is usually a low-carbon way to travel – but it depends on what you eat. and it helps you to Reduce Your Carbon Footprint by Cycling.

The UN climate change report warns that we need to reduce our ***carbon footprint*** before it's too late. Here's how ***bike*** commuting can help.

You're probably well aware of cycling's numerous health benefits. But its impact on the planet can make life better and safer for all people, not just individuals aiming for a healthier lifestyle.

That's according to a new report from the UN's Intergovernmental Panel on Climate Change (IPCC). The panel's scientists determined that if the global temperature rises by 1.5°C or more by 2030, the worldwide risk of events like extreme droughts, wildfires, and floods will increase exponentially.

The bad news: If no changes are made, the global temperature could rise by as much as 3°C—double the rate that scientists agree would already be catastrophic. But everyone from governments and large corporations to private citizens can take steps to fight the effects of climate change. The IPCC suggested ways to reduce our carbon footprint—and cycling for transportation is one of them.

One thing that can be done is cities planning and implementing complete street policies—things like funding infrastructures, building protected bike lanes, and talking to citizens about what would make them feel safe," Whitaker told ***Bicycling***. By using bike lanes and other infrastructure to better connect neighbourhoods with schools, offices, and shopping centres, she said, cities and towns could encourage more people to ditch their cars and

bike instead. This is the best way to Reduce Carbon Footprint by Cycling.

Taking the leaf off the Harvard university, We suggest that the concept of commute to work be explored. We present the link to understand how the Harvard university encourages and practices.

https://green.harvard.edu/tools-resources/how/10-tips-harvards-bike-commuting-pros

SENSORS - Use of Natural Resources:

The institute has taken good initiatives in incorporating various measures to adopt to new technologies available.

The institute uses LED lights in most of the rooms. At places where they are not in use, they are planed to be replaced by LED lights as and when they fuse out. The class rooms are very well illuminated.

The street lights, waranda lights are all seen to be LED lights. The focus has been energy conservation on top priority.

As engineering college, it is obvious that the information on other aspects of lighting is brought to the notice of all the staff members. We have illustrated few of the aspects that has adverse affect on the visibility and hampers the task being performed.

Energy savings on use of new technology:

As engineering college, it is obvious that the information on other aspects of lighting is brought to the notice of all the staff members. We have illustrated few of the aspects that has adverse affect on the visibility and hampers the task being performed.

We have illustrated and discussed in detail using one case study.

Here in the typical observation, the students from medical institute are working in laboratory. The task is to record their findings on the object viewing through the MICROSCOPE.

It may be observed that the microscope's visibility is enhanced by task lighting below the MICROSCOPE so as to provide clear and effective vision. It is also seen that the over head illumination is bright and shining.

The students were asked to comment, if the observation on the microscope was better with the overhead lights ON or OFF, unanimously, everyone working said that the observations were better without the overhead lights. This fact was explained to the staff for implimentation.

ACTION : every teaching staff and the Lab supervisors should be educated on these critical aspects.

BENEFITS : The strain on the students reduces drastically, observations can through better knowledge as the colour contrast is crisp and clear. The

institute saves on energy abuse. Thus its an win-win situation for all the members involved.

COST : NIL, no additional investment is required, just operation of switching habits.

More information on VISIBILTY concerns. These observations are shared here as it benefits the MEDICAL fraternity in their course of medical diagnosis and opens areas for REASEARCH avenues.

Light pollution is the presence of anthropogenic and artificial ***light*** in the day or night environment. It is exacerbated by excessive, misdirected or obtrusive use of ***light***, but even carefully used ***light*** fundamentally alters natural conditions.

Light pollution is caused by inefficient or unnecessary use of artificial light. Specific categories of light pollution include light trespass, over-illumination, glare, light clutter, and skyglow. A single offending light source often falls into more than one of these categories.

Every day, people are exposed to hours of artificial light from computers, office lights and even 24-hour lighting in hospitals.

Now, new research in animals shows that excessive exposure to "light pollution" might be worse for you than previously known, taking a toll on muscles and bones.

Researchers at Leiden University Medical Centre in the Netherlands tracked the health of rats exposed to six months of continuous light compared with a control group of rats living under normal conditions -- 12 hours of light, followed by 12 hours of dark.

During the study, reported in Current Biology, the rats exposed to continuous light had less muscle strength and showed signs of early-stage osteoporosis. They also got fatter, and some markers of immune system health worsened.

While earlier research found excessive light exposure might affect cognition, the new research showed a surprising effect on muscles and bones.

"Not only did motor performance go down on tests, but the muscles themselves just atrophied, and mice physically became weaker after just two months," said Chris Colwell, a sleep specialist at the University of California-Los Angeles, who was not involved with the study.

The good news is the effects of light exposure appear to be reversible. When the study rats returned to their natural light-dark cycle, their health returned to normal after two weeks.

The data suggest more research is needed into the health effects of artificial light. One concern is the health of patients in hospital intensive care units, people in nursing homes and babies in neonatal units -- places where artificial lights often are kept on for 24 hours a day.

"We keep the sickest people in our society under constant light conditions," Colwell said.

The research also might have implications for people exposed to the blue wavelength light emitted from computers, which might be more disruptive to the body than the light that comes from traditional artificial lights.

NEED BASED LIGHTING:

During the audit, we observed that the lights are kept illuminated even when there was no one occupying the room. Every minute of energy saved results into monetary savings and environmental benefits.

It is important that all the rooms have Occupancy sensors and smart lighting systems. In some of the large sized rooms occupied by few students, all the lights in the room are illuminated. Hence it is important that we have multiple level switching systems.

USE OF NATURAL LIGHTING: where possible, we should avoid blocking natural ingress of light and reduce use of electrical lights.

Ceiling fans are also in operation over the entire hall. To increased effective air circulation, we need to keep the fans at low speed and switch of fans where not needed. When fans are operated at high speed, the AIR TURBULANCE effect results into suffocation and increased room temperature and uncomfortable feelings.

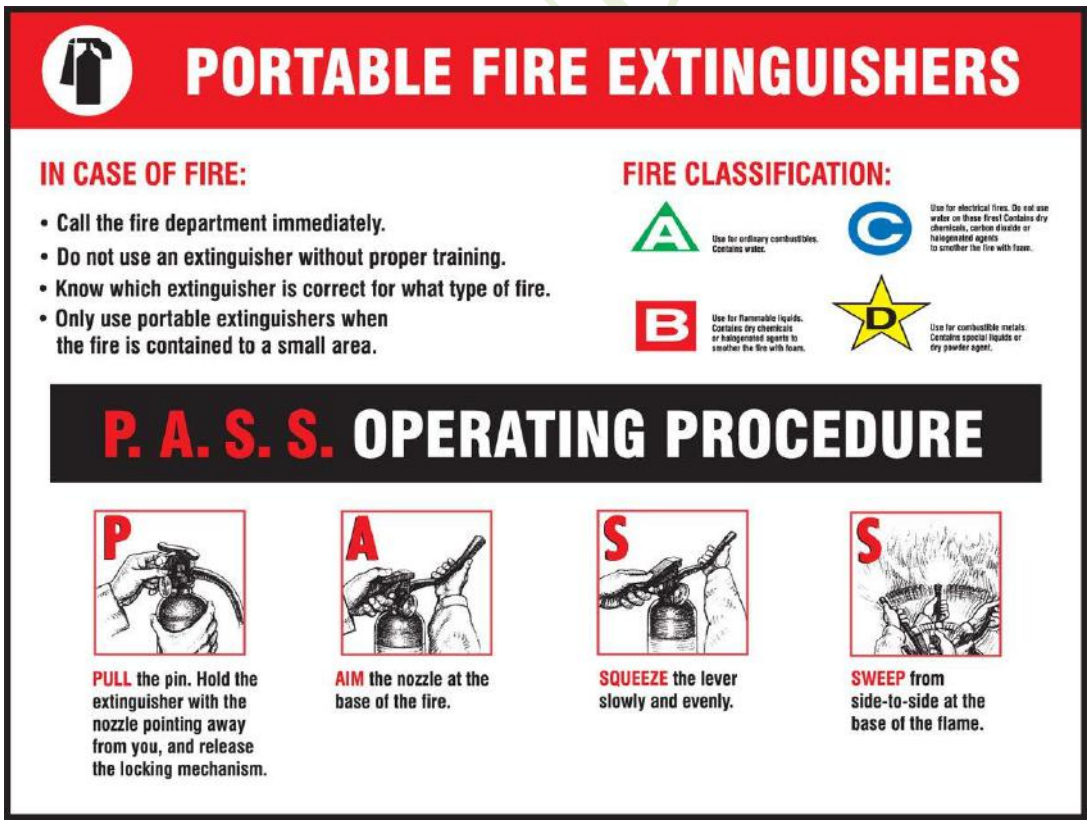
Sharing achievements.

The college English department and Computer department have projected photos of prominent achievers and performers.

While few of the people have been named some are not. More than just naming these achievers, it would be a great motivation if the concerned department highlights few details and why they are achievers. If space permits, their childhood days and early years are highlighted.

Fire safety :

The fire extinguishers should be placed at the entrance of the room housing dangerous devices. So that, they are handy when need to be used.



It is also important that the handling instructions are Predominantly displayed. The sample poster is reproduced for replication.

Type (Fire / Extinguisher)	CLASS A Combustible materials (e.g. paper & wood)	CLASS B Flammable liquids (e.g. paint & petrol)	CLASS C Flammable gases (e.g. butane and methane)	CLASS D Flammable metals (e.g. lithium & potassium)	Electrical Electrical equipment (e.g. computers & generators)	CLASS F Deep fat fryers (e.g. chip pans)	Comments
Water	✓	✗	✗	✗	✗	✗	Do not use on liquid or electric fires
Foam	✓	✓	✗	✗	✗	✗	Not suited to domestic use
Dry Powder	✓	✓	✓	✓	✓	✗	Can be used safely up to 1000 volts
CO2	✗	✓	✗	✗	✓	✗	Safe on both high and low voltage
Wet Chemical	✓	✗	✗	✗	✗	✓	Use on extremely high temperatures

In case of fire, the appropriate Fire extinguishers should be placed at the entrance but outside the room. The details of such classified Extinguishers is indicated for reference.

Stones should be placed and not Tiles surrounding the transformer need to be removed.

References

IEEE standard 1100-2005: Recommended practice for power and grounding sensitive electronic equipment.

IEEE standard 518-1982: Guide for installation of electrical equipment to minimize noise inputs to controllers from external sources.

Note: IEEE now has withdrawn this standard.

IEEE standard 142-1991: Recommended practices for grounding of industrial and commercial power systems.

IEEE standard 81-1983 and 81.2-1991: Guide for measuring earth resistivity, ground impedance, and earth surface potentials of a ground system.

NFPA-78 Lightning Protection Code 1986, Quincy, Massachusetts: National Fire Protection Association, 1986.

Disposal of used Batteries In compliance with Category 7.1.1, 7.1.2, 7.1.3 and 7.1.5. Avoid battery disposal – consider regeneration.

BATTERY PLACEMENT:

The batteries disposal is an environment threat. The lead which is a major component 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.

Hence 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 backed up with necessary periodical check with the density of the battery solution.

Battery Management:

Concealed batteries in operation or used batteries should be properly named and placed in proper order. The used batteries should be considered for REGENERATION for the second and subsequent cycles and prolong the disposal as the chemicals cause high level of damage to the environment.

We will discuss the regenerative system of used and week batteries to enhance the life. It is important to know few points on handling of batteries.

BU-703: Health Concerns with Batteries.

Become familiar with the dos and don'ts when handling batteries. Batteries are safe, but caution is necessary when touching damaged cells and when handling lead acid systems that have access to lead and sulfuric acid. Several countries label lead acid as hazardous material, and rightly so. Lead can be a health hazard if not properly handled.

Lead

Lead is a toxic metal that can enter the body by inhalation of lead dust or ingestion when touching the mouth with lead-contaminated hands. If leaked onto the ground, acid and lead particles contaminate the soil and become airborne when dry. Children and foetuses of pregnant women are most vulnerable to lead exposure because their bodies are developing. Excessive levels of lead can affect a child's growth, cause brain damage, harm kidneys, impair hearing and induce behavioural problems. In adults, lead can cause memory loss and lower the ability to concentrate, as well as harm the reproductive system. Lead is also known to cause high blood pressure, nerve disorders, and muscle and joint pain. Researchers speculate that Ludwig van Beethoven became ill and died because of lead poisoning. By 2017, members of the International Lead Association (ILA) want to keep the lead blood level of workers in mining, smelting, refining and recycling below 30 micrograms per decilitre (30µg/dl). In 2014, the average participating employee checked in at 15.6µg/dl, but 4.8 percent were above 30µg/dl. (Source Batteries & Energy Storage Technology, Summer 2015.)

In 2019, the University of Southern California published the detection of lead in teeth of children living near the Exide Technologies battery recycling plant in Vernon, California.
Lead occurs naturally in soil at 15–40mg/kg level. This level can increase multi-fold near lead battery manufacturing and recycling plants. Soil levels in developing countries, including on the continent of Africa, recorded lead contamination levels of 40–140,000mg/kg.

Sulfuric Acid

The sulfuric acid in a lead acid battery is highly corrosive and is more harmful than acids used in most other battery systems. Contact with eye can cause permanent blindness; swallowing damages internal organs that can lead to death. First aid treatment calls for flushing the skin for 10–15 minutes with large amounts of water to cool the affected tissue and to prevent secondary damage. Immediately remove contaminated clothing and thoroughly wash the underlying skin. Always wear protective equipment when handling sulfuric acid.

Cadmium

Cadmium used in nickel-cadmium batteries is considered more harmful than lead if ingested. Workers at NiCad manufacturing plants in Japan have been experiencing health problems from prolonged exposure to the metal, and governments have banned disposal of nickel-cadmium batteries in landfills. The soft, whitish metal that occurs naturally in the soil can damage kidneys. Cadmium can be absorbed through the skin by touching a spilled battery. Since most NiCad batteries are sealed, there are no health risks in handling intact cells; caution is required when working with an open battery.

Nickel-metal-hydride is considered non-toxic and the only concern is the electrolyte. Although toxic to plants, nickel is not harmful to humans.

Lithium-ion is also benign — the battery contains little toxic material. Nevertheless, caution is required when working with a damaged battery. When handling a spilled battery, do not touch your mouth, nose or eyes. Wash your hands thoroughly.

Keep small batteries out of children's reach. Children younger than four are the most likely to swallow batteries, and the most common types that are ingested are button cells. Each year in the United States alone, more than 2,800 children are treated in emergency rooms for swallowing button batteries. According to a 2015 report, serious injuries and deaths from swallowing batteries have increased nine-fold in the last decade.

The battery often gets stuck in the oesophagus (the tube that passes food). Water or saliva creates an electrical current that can trigger a chemical reaction producing hydroxide, a caustic ion that causes serious burns to the surrounding tissue. Doctors often misdiagnose the symptoms, which can reveal themselves as fever, vomiting, poor appetite and weariness. Batteries that make it through the oesophagus often move through the digestive tract with little or no lasting damage. The advice to a parent is to choose safe toys and to keep small batteries away from young children.

Safety Tips

Keep button batteries out of sight and reach of children. Remote controls, singing greeting cards, watches, hearing aids, thermometers, toys and electric keys may contain these batteries.

Similar to pharmaceutical products, keep loose batteries locked away to prevent access by small children.

Communicate the danger of swallowing button batteries with your children, as well as caregivers, friends, family members and babysitters.

If you suspect your child has ingested a battery, go to the hospital immediately. Wait for a medical assessment before allowing the child to eat and drink.

Ventilation

Charging batteries in living quarters should be safe, and this also applies to lead acid. Ventilate the area regularly as you would a kitchen when cooking. Lead acid produces some hydrogen gas but the amount is minimal when charged correctly. Hydrogen gas becomes explosive at a concentration of 4 percent. This would only be achieved if large lead acid batteries were charged in a sealed room.

Over-charging a lead acid battery can produce hydrogen sulphide. The gas is colourless, very poisonous, flammable and has the odour of rotten eggs. Hydrogen sulphide also occurs naturally during the breakdown of organic matter in swamps and sewers; it is present in volcanic gases, natural gas and some well waters. Being heavier than air, the gas accumulates at the bottom of poorly ventilated spaces. Although noticeable at first, the sense of smell deadens the sensation with time and potential victims may be unaware of its presence.

As a simple guideline, hydrogen sulphide becomes harmful to human life if the odour is noticeable. Turn off the charger, vent the facility and stay outside until the odour disappears. Other gases that can develop during charging and the operations of lead acid batteries are arsine (arsenic hydride, AsH_3) and (antimony hydride, SbH_3). Although the levels of these metal hydrides stay well below the occupational exposure limits, they are a reminder to provide adequate ventilation.

Regeneration of week batteries for the second lease of life.

REGENERATE YOUR SULPHATED BATTERIES

Battery regeneration is very popular. 80% of the batteries breaking down and losing capacity are sulphated, but can be restored with the right equipment. Battery regenerator successfully replaces sulphation by active material thanks to an electrical high-frequency pulsation process. This process restores the battery capacity, giving you the ability to reuse old and sulphated batteries. You can also use the battery regenerator for annual maintenance to considerably prolong the lifespan of your batteries. The battery regenerator can be used in every lead-acid-based battery: starter batteries, stationary batteries, traction & semi-traction batteries, Ni-Cad batteries … Since the college uses BATTERIES in large numbers, the man-

agement can consider to procure one unit at the centralised station in the college campus.

Fuel storage and handling.

♦ Gas bottle storage regulations require adequate ventilation for gas bottle safety. In the event of an LPG gas bottle storage release of gas and without adequate ventilation, gas dissipation occurs slowly and the accumulated gas remains within its explosive range over a longer period of time.

♦ LPG gas cylinder storage rules require (LPG storage requirements) storage must be free from sources of ignition for gas bottle safety.

♦ LPG gas bottle storage must always be upright so that the LPG gas cylinder safety **pressure relief valve** is in the vapour section of the LPG (propane) gas cylinder storage.

♦ For LPG gas cylinder safety, you should treat any LPG gas cylinder storage that has ever been filled as a full cylinder, even if you believe it to be empty. Only gas bottle storage purged with inert gas can be once again considered empty.

♦ Never open the valve of any unconnected LPG (propane) gas cylinder storage, even if it is believed to be empty, as there is almost always some remnant gas in every gas bottle storage.

♦ LPG gas bottle storage (LPG cylinder storage) should be limited to no more than what is required.

♦ Forklift cylinders not being used are required to be stored outside in well ventilated LPG storage. This is typically in a storage cage at least 6 metres (20 feet) from other structures.

♦ LPG should never be stored in excess of 50C (122F) or near a heat source.

♦ LPG gas bottle storage must be prevented from falling, movement or physical damage by storing them in approved cages/racks, securing the LPG gas cylinder storage with LPG gas cylinder safety chains or using other approved retention methods for LPG gas cylinder safety.

♦ **LPG - Liquefied Petroleum Gas** - is heavier than air and will collect in low areas instead of dissipating.

As a result, there must be adequate ventilation and air movement in any LPG (propane) gas cylinder storage area.

♦ LPG gas bottle storage regulations (LPG storage requirements) require placarding when the combined capacity of the LPG gas cylinder storage exceeds 500 litres of water capacity.

Rainwater Management:

Aerial View of the College Campus.

The campus is spread over scenic, elevated terrain. The Rocky structure makes things great for beatification with local flora and fauna. The campus has good opportunity to nurture the knowledge among the students from Biology, Physics and Geology.

We have discussed one such opportunity for the students and team of faculty from Physics department.

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

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 a Point near the gotanical gargen and the same can be put to use at a later days.

RAIN WATERMANAGEMENT:	Category 7.1.4

These (blue) lines indicate gradient and the red lines illustrate the contour lines. The points on iso-contour lines may be linked and the trenches made.

This provides sufficient room and time for water percolation.

Precaution: The terrain is rocky. It is important that the width of at least 1000mm and depth of around 1500mm be provided.

SURFACE WATER	Category 7.1.4
The college has a creatively used the center space for the amphitheater. However, the rainwater if used to recharge the subsoil, the perennial plants down the slope would thrive with green cover during summer days when watering is through pumping system. The terrace water in the campus, flows along at random, there is a need for planed exit points & channelized to manageable area to avoid flooding at the low-lying areas. We suggest that the college discuss with the colleges in the campus and collectively take-up RAINWATER management project. What is visible is that the college is fully covered under the structured roof. And channelizing the roof water to an area near the borewell in front of the college. it should increase the quality of the water and more near to sweetness and less TDS count.	
The water that hits the road may be channel-ized 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 laid, in future, it is advised to consider the use of perforated pavers as shown in the subse-quent discussions. The runoff water can	 Illustrative

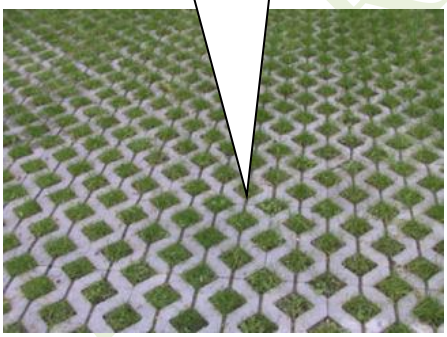
prove to be very resourceful if harvested judiciously.

CONCRETE PAVERS:

It is observed that the part of the open area in the [illegible] left open. The Rain water will runoff into adjoining areas. [illegible] nst the interest of water conservation measures & de[illegible] ial plants around it from natural watering system.

It would be appreciated if the perforated pavers are [illegible] re-sent system. This will help in increasing the greenery [illegible] ing the Rainwater & preventing possible flooding.

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



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.

BENEFITS:

The rainwater is pure distilled water before it touches the earth surface.

The clean terrace will help in collecting the rainwater and bottled for later use in all laboratory requirements.

Topping the batteries as and when required.

When directed to the borewell, the quality of borewell water improves by diluting the dissolved solids making it good for consumption.

PRECAURIONS, when charging the borewell, the surface water should be directed through proper filter pipe carbon treatment facility.

Contact Green Earth Initiatives, Hubli for further details. Contact number 9482633505.

WATER MANAGEMENT:	Category 7.1.4
Watering the plants in excess or not watering them hampers the healthy growth, it also results 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.

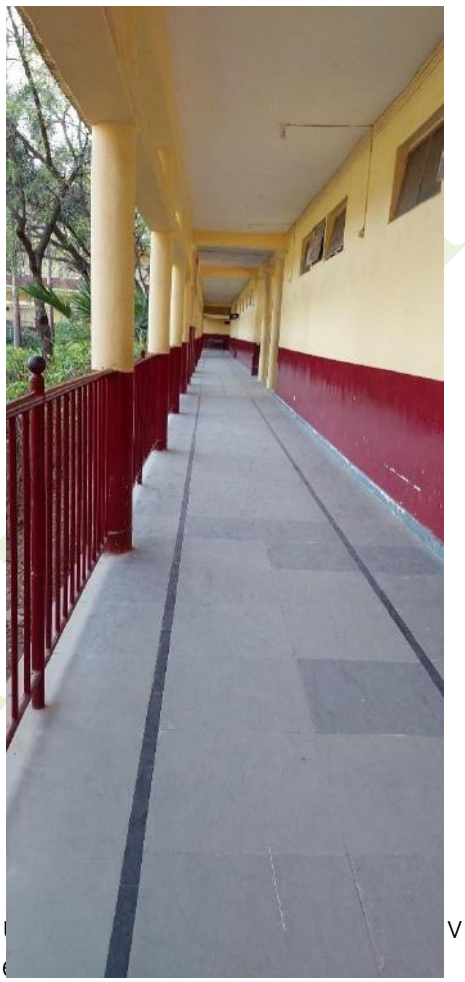
BENEFITS:

Minimised disposal of plastic,

Reduced Waste segregation efforts.

Multiple use awareness using plastic bottles.

Plastic bottles can be used for road marking & demarcation.

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 source and makes the task of handling waste simple. It also makes room for revenue generation as the plastic and metal waste can be sold at a later date. SOLUTION: A very innovative concept of waste collection system has been introduced by the college nearby @ Ilkal. A little change can be followed i.e., color 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.,	 Ill ve m Local Biodegradable 

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.	 Plastic Bins  Metal Bins 
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.	 Burning of Solid waste.
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

WORK CULTURE:

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

Placement of footwear: Our work culture is depicted in the way we behave and exhibit.

SAFETY:

The large storage containers of Chemicals when placed open to easy access may lead to health hazards and also spillage.

The access to chemicals required for the days or two should be placed with easy access and the rest may be placed in separate room which is available at present.

The water taps are seen to be leaking all day. This will lead to exhaustion of the water required for normal activities and also for washing off the excess chemicals or skin contact.

The LPG pipeline is open and remains unpainted. It is important to avoid direct exposure to AIR and water to avoid pipe rusting and there by the possible leakage. It also helps to prolong the life of the PIPELINES.

PAPERLESS OFFICE:

In the present working conditions, transmission of infection has become vital and to address the issue, we can consider to accept digital documentation process. It has also been now legalized in accepting all such documents and a step towards paperless office is the next office administration process. We have discussed few aspects in the article presented below. For more details, the link provided at the end may be browsed.

With due credit to the authors This article 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.

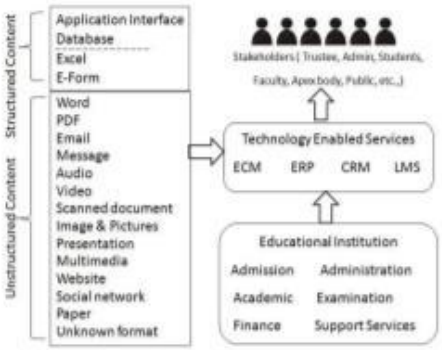

Figure 1. Educational Technology services deal with different content format

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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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

printing & dispatch of answer scripts. The technological advancement in digital exams permit candidates to write exam on flexible Tab devices, automatic dummy number allocation, quick process of multiple and re-evaluation processes, simplify the review of evaluated answer scripts and result processing with dashboard analytics.

(Kaushik, 2015) The university libraries are extended to do innovative e-resource services using technology such as OPAC search facility for both print and e-books of different publishers with links to full texts, digital scanning facility, host vide lectures and archive, online question bank, coordinate with MOOC initiatives, online reservation and renewal of books, indexing & abstracting services usage of Web 2.0 tools to disseminate new arrivals, maintain e-dissertations and subscribe e-journals. The digital libraries also face few challenges like archival of resource, longevity of storage media, removal of obsolete information to speed up the search process, deal copyright issues and intellectual property of resources and Universal access to knowledge and maintenance.

(NDTV, 2017) In accomplishing the government's challenging task of shifting India from cash dependent to a less cash-reliant economy, UGC issued an advisory to adopt online payment methods for tuition fees, exam fees, vendor payments, salary, wages and other campus services. All shops and vendors in institution premises including photocopier services, canteen and cooperative shops have adopted different mode of cashless transactions. In addition, all these shops come equipped with point of sale machines. One of the institutions has introduced smart cards to the students to buy food from canteen and shops in campus premises. The money is deposited by the parents online.

(Chronicle, 2018) Despite the digital initiatives of apex body in central and state governments and higher educational institutions own mission on implementing automation, there are institutions who could not achieve desired result in paperless office. The simple conversion of paper based activities to e-form will not be sufficient. The strong domain expertise with business process workflow, interconnectivity of data must be required. This necessitated knowledge on both ECM guidelines and Higher education administration.

IV. CHALLENGES IN ACHIEVING PAPERLESS

(LaMonte, 2016) indicates that the paper process still dominate in the office administration and increased the challenge on digital transformation. The mere implementation of ECM tools may not be sufficient, the performance to be measured for removing paper from operational processes in terms of response time, collaboration, back-office cost and compliance regulation to be focused as ECM is a process defined & utilized by stakeholder,. (Larrivee et al., 2016) survey reveals organization perception (P1 to P5), operation (O1 to O5) and need (N1 to N5) on ECM implementation as shown in the Figure 2.

The initial budget on technology investment may be high in paperless, but the paper based operations are costly in terms of back-office operation with duplication and siloed information. The main difficulties of ECM implementation are listed in the order as follows: re-orienting staff, integration with existing system, define process with clarity and making a business case, convincing legal compliance and dealing exceptions. (Genesis et al., 2018) The paperless higher education mission is affected by organizational cultural change, re-orienting staff, integration with existing system, verbatim implementation of traditional workflow, lack of network connectivity & power supply in rural area and overdependence on consultants. (Isaeva et al., 2016) The goal of developing ECM is to overcome the listed challenges and to make the system more transparent with efficient service integration.

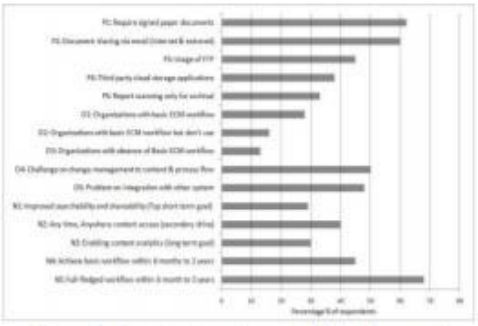

Figure 2. Organization view on ECM implementation (Source: Larrivee et al., 2016)

V. ECM GUIDELINES

(SUMS, 2017) As it is easy to create and repurpose digital documents over paper documents, a number of questions need to be answered prior to implementation.

- (SoftCo, 2016) storing as document as opposed to store as data
- (AIIM,2010b)Assess the functional gap in content management, integration of business application & link to database and document system with its affordability
- (Hullavarad et al., 2015) Version control to avoid duplication and inconsistency especially in concurrent access
- (Katuu, 2012, eGOV-PID, 2013) Fully automated retention rules of those records & documents, Compliance with Institutional governance & Record and Document retention policies
- (eSAFE,2010) Security impact & third party access requirements
- (Nordheim et al., 2004) Balancing user expectations and policies of information governance in customization
- (Cognizant, 2014) Technical viability of current/future content tools with ECM architecture.

(DTCA, 2014) The ECM reference architecture framework given in Figure 3 answers all the listed questions and provides services beyond the expectations. Apart from content capture & delivery of both human created and application created information, ECM is designed to manage document, web content, forms, records, digital assets of

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

Enterprise Content	Existing practice
Office of Administration: • Statutory Approvals, Affiliation, Communication, Act, Statute, Rules, • Administration manual, Policy manual, Safety & Security standards • Minutes of Board of studies, Academic council, Finance, Senate & Advisory Boards • Strategic plan, Operations plan, Situational assessments, Committee & Annual Reports • Event Calendar & Approval, Legal contracts, Purchase bids, General insurance • Leave rules, Medical insurance, Pension policy, Guest honorarium, Travel grant Office of Internal Quality Assurance Cell (IQAC) • Quality manual, Accreditation Ranking/ Rating/ Awards/ Recognition, Action taken report Estate office: • Building plan, Blue print, Approval, Construction, Site photographs, Service contracts, Finance office: • Corpus fund, Donations, Investments, Loans, Fund disbursements • Fee estimation, Budget, Balance Sheet Public affairs: • Press Release, News, Community events, Branding, Advertisements, Marketing & outreach Human Resource: • Vacancy position & norms, Recruitment, Cadre promotion, Subsidiary assignment Admission: • Intake, Fee Structure, Scholarship / stipend / concession, Admission schedule, refund policy Academic: • Academic calendar, Regulations, Curriculum, Syllabus, Lab Equipment, Examination: • Examination process manual, Result Declaration, Convocation Industry & International Cell: • Industry memorandum, International alliances, collaborations Purchase: • Inventory, Invoice, Quality assurance	• Paper based works in approvals and distribution through mail, Preservation in the form of Office documents / PDF in a scattered manner • lack in terms of content repository, which leads to inconsistency, version control in concurrency access, difficulty in document identification and retrieval ECM Guidelines: • Usage of ECM Manage components: Document & Digital Asset Management • Storage: Controlled access of centralized location specific content repository • Records management service is to be extended to document preparation of IQAC, Finance, and other departments in data capture & delivery • Third party access control to be established in case of Minutes of Boards, Service • Workflow with strategic Team in one or more content usage scenario such as creation, modification, approvals, collaboration and preservation is required • Limited and Controlled final version of Documents in hard copy

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 (such practice is stopped)
Certificate verification	Online & DigiLocker	Manual verification
Merit list & Counseling schedule	Online	Through Courier / Postal service (such 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

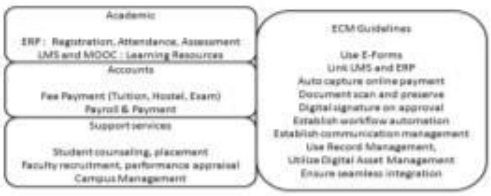

Figure 4. ECM guidelines in Academic, Accounts and support services

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 Guiddines 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.

INDOOR AIR QUALITY IMPORTANCE AND PURIFICATION AWARENESS:

In present day situations, The dust particulate count is nearing danger level. The critical PM2.5 is measured at the border level. In medical college, the Laboratory test conditions may have to be reviewed for effective study.

If the windows are closed to prevent the Dust PPM level, the Concentration of CO2 shoots. For fully focussed and relaxed learning, it is important to maintain CO2 level between 400 and 600 PPM.

Indoor air quality (**IAQ**) is the air quality within and around buildings and structures. IAQ is known to affect the health, comfort and well-being of building occupants. Poor indoor air quality has been linked to sick building syndrome, reduced productivity and impaired learning in schools. More details on IAQ can be explored and evaluated from health point.

This is normally discussed under the Sick Building Syndrome. The table below summarises in brief.

VEHICLE PARKING

As seen in campus

It is important to consider the factors that can disturb others behaviour.

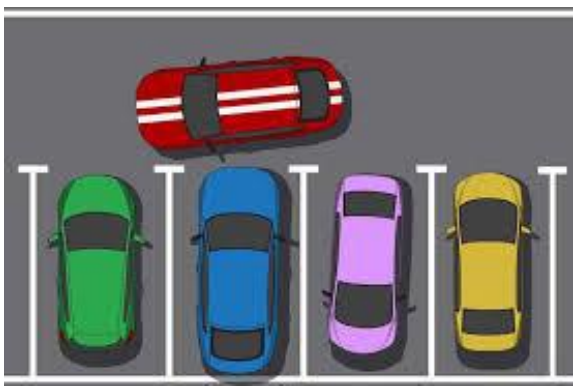
Few factors the college can consider to bring in change in are

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 their college days, the student learn the sense of social responsibility. There behavioural culture makes a positive change when they walk out and behave responsibly. It is a matter of pride for the college too, to speak and practice best practices.

The images shown below are for illustration only and are not captured in the campus. (Kindly see the gallery for campus related photos)



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.	

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.

With 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.

FACTORS CONSIDERED.

It is vital factor to consider the limitations beyond human control. However, our work culture, should be oriented towards the better and safe dwelling. Considering the present health hazards, Not forgetting the ongoing COVID, the quality of air and after effects of the pollution caused by our activities need to be addressed and all the young generations should be educated to contribute towards positive impact

Geographical layout plays an important role when deciding on our energy use.

The conditions prevailing have been listed below (Courtesy: https://en.wikipedia.org/wiki/Sindagi)

Sindagi is a City and Taluk in Vijayapura district in the Indian state of Karnataka, about 60 km to the east of Bijapur.

Geography

Sindagi is located at 16.92°N 76.23°E. It has an average elevation of 500 meters (1640 feet). Sindagi is 60 km/37.28 miles away from the main district city of Bijapur, and 545 km/338.95 miles from the state capital, Bangalore. The nearest major railway station to Sindagi is at Indi (50 km), and the nearest airport is at Kalaburagi (96 km). Sindagi is a lesser Rainy Area and Most of the Area is Dry land. And Sindagi has a Good Planned City in Vijayapura District. Sindagi is Having Good Transportation System with National Highway 50.

Sindagi	
City	
	
Sindagi: Location in Karnataka, India Coordinates: 16.92°N 76.234°E	
Country	India
State	Karnataka
Region	Bayalu Seeme
District	Bijapur District
Elevation	500 m (1,600 ft)
Population (2011)	40,000
Languages	
• Official language	Kannada
Time zone	UTC+5:30 (IST)
PIN	586128
Vehicle registration	KA:28
Website	karnataka.gov.in www.sindagitown.mrc.gov.in

Demographics

As of 2011 India census, Sindagi had a population of 53,213. Males constitute 51% of the population and females 49%. Sindagi has a middle range literacy rate of 61%. Male literacy is 69%, and female literacy is 55%. 16% of the population is under 6 years. Sindagi City is the best commercial taluk In Vijayapura District and one of the taluks eligible of being a new district also.

Sindagi Religion Data 2011

The population of Sindagi town was 37,226, as per the 2011 census by government of India. Hindus constitute 69.26% of the population, while Muslims closely follow with 30.12%.

Bijapur, officially known as Vijayapura, is the district headquarters of Bijapur District of Karnataka state of India. It is also the headquarters for Bijapur Taluka. Bijapur city is well known for its historical monuments of architectural importance built during the rule of the Adil Shahi dynasty. It is also well known for the sports by the popular Karnataka premier league team as Bijapur Bulls. Bijapur is located 530 km (330 mi) northwest of the State Capital Bangalore and about 550 km (340 mi) from Mumbai and 384 km (239 mi) west of the city of Hyderabad.

The city was established in the 10th-11th centuries by the Kalyani Chalukyas and was known as Vijayapura (City of victory). The city was passed to Yadavas after Chalukya's demise. In 1347, the area was conquered by the Bahmani Sultanate. After the split of the Bahmani Sultanate, the Bijapur Sultanate ruled from the city. Relics of the Sultanates' rule can be found in the city, including the Bijapur Fort, Bara Kaman, Jama Masjid, and Gol Gumbaz.

Vijayapura, one of the popular heritage cities located in the Karnataka state of India is also one of the top ten populated cities in Karnataka. The Bijapur city has been declared as one of the corporations in the state of Karnataka last year. Bijapur urban population as per 2011 census is 326,000, perhaps the 9th biggest city in Karnataka. Bijapur Mahanagara Palike (BMP) is the newest Municipal Corporation formed under the KMC act along with Shimoga and Tumkur Municipal Corporations. Administratively, Vijayapura district comes under Belgaum division along with Bagalkote, Belgaum, Dharwad, Gadag, Haveri and Uttara Kannada (Karwar) districts.

Geographically, the district lies in the tract of the Deccan Plateaus. The lands of the district can be broadly divided into three zones: the northern belt consisting of the northern parts of Bijapur Taluks of Indi and Sindagi; the central belt consisting of Bijapur city; the southern belt consisting of the rich alluvial plains of the Krishna Rivers parted from the central belt by a stretch of barren Trap. The northern belt is a succession of low rolling uplands without much vegetation, gently rounded and falling into intermediate narrow valleys. The upland soil being shallow, the villagers are generally

confined to the banks of the streams and are far away from one another. The Don River Valley has plains and consists of rich tracks of deep black soils stretching from west to east in the central part of the district. Across the Krishna River is a rich plain crossed from west to east by two lines of sandstone hills. Further south towards Badami and southwest to east by two lines of sandstone hills. Further south towards Badami and southwest of Hunagund, the hills increase the number and the black soil gives way to the red

There are 34 rain gauge stations in Bijapur District. The average annual rainfall for the district is 553 mm with 37.2 rainy days. The monsoon generally breaks in the district during June and lasts till October. The highest mean monthly rainfall is 149 mm in the month of September and lowest is 3 mm in February. The annual rainfall variation in the district is marginal from place to place.

The soils of Bijapur District can be categorized as a low to moderately yielding area (1000 to 8000 L/h) 72.2% of district falling in this category. From considerable part of the district (9%) poor yielding (less than 1000 L/h sources) or non–feasible areas have been reported. The talukas having largest poor yielding area, are Muddebihal (19%) followed by Indi (15%), Bijapur and Sindagi (13% each), Basavan Bagewadi (4%). Low yielding areas (1000 to 4000 L/h source) in the district constitute about 40% of the district, with the largest being Basavan Bagewadi (54%) and smallest in Indi taluka Moderate yields (4000 to 8000 L/h source) are reported from 36% of the district, highest being in Bijapur with 70% of the area, and lowest being in Sindagi with 19% of the taluka. High yielding areas (more than 8000 L/h sources) over 15% of the district. The smallest area under this category is in Sindagi Taluka (2% each) and largest is in Muddebihal (29% each) where very lengthy contact zones occur between traps and other formations

On the basis of projections from this information, the main parameters affecting water quality in Bijapur can be expected to be brackishness (salinity) and hardness (PH). Salinity affects the district in high to low groundwater problem areas and occurs in areas all along the major and minor river courses and stream courses.

Climate and temperature

Bijapur has a semi-arid climate. It is located at 16.83°N 75.7°E. It has an average elevation of 606 metres (1988 ft).

The climate of Bijapur district is generally dry and healthy. In summer, especially in April and May it is too hot; at that time the temperature lays between 40-degree Celsius to 42-degree Celsius. In winter season, from November to January the temperature is between 15-degree Celsius to 20-

degree Celsius. Usually the district has dry weather, so the humidity varies from 10% to 30%.

hideClimate data for Bijapur (1981–2010, extremes 1901–2012)

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Record high °C (°F)	39.4 (102.9)	41.1 (106.0)	41.9 (107.4)	43.3 (109.9)	44.9 (112.8)	43.0 (109.4)	36.9 (98.4)	36.5 (97.7)	37.4 (99.3)	37.3 (99.1)	35.0 (95.0)	34.6 (94.3)	44.9 (112.8)
Average high °C (°F)	30.8 (87.4)	33.9 (93.0)	36.9 (98.4)	39.0 (102.2)	39.1 (102.4)	33.6 (92.5)	30.9 (87.6)	30.5 (86.9)	31.4 (88.5)	31.6 (88.9)	30.5 (86.9)	29.7 (85.5)	33.1 (91.6)
Average low °C (°F)	16.5 (61.7)	18.3 (64.9)	21.9 (71.4)	24.1 (75.4)	24.0 (75.2)	22.7 (72.9)	22.0 (71.6)	21.7 (71.1)	21.6 (70.9)	21.0 (69.8)	18.5 (65.3)	15.7 (60.3)	20.7 (69.3)
Record low °C (°F)	7.0 (44.6)	8.9 (48.0)	11.2 (52.2)	15.8 (60.4)	17.8 (64.0)	17.2 (63.0)	16.1 (61.0)	16.7 (62.1)	16.1 (61.0)	12.2 (54.0)	5.6 (42.1)	6.0 (42.8)	5.6 (42.1)
Average rainfall mm (inches)	4.0 (0.16)	0.6 (0.02)	5.7 (0.22)	20.6 (0.81)	39.8 (1.57)	108.0 (4.25)	66.9 (2.63)	92.3 (3.63)	156.9 (6.18)	119.7 (4.71)	25.0 (0.98)	7.7 (0.30)	647.1 (25.48)
Average rainy days	0.2	0.1	0.8	1.4	3.3	5.8	5.5	5.6	8.3	5.7	2.0	0.4	39.1
Average relative humidity (%) (at 17:30 IST)	38	31	28	30	34	56	65	65	62	54	49	43	47

Source: India Meteorological Department[101]

Rainfall

The district has 34 rain gauge stations. The average annual rainfall for the whole district is 552.8 mm, with 37.2 rainy days. The monsoon generally reaches the district by June and lasts till October. Though the total rainfall is not high, the district benefits both from the south-west and the north-east monsoons. The annual rainfall varies from place to place within the district.

Soil

The district has two types of soil. First one is, "deep black soil" (or yere bhoomi), which is good for the crops like jawar, wheat, pulses, sunflower, etc. The major portion of the district consists of this kind of soil which has a great moisture-holding capacity. Second one is "red soil" (or masari /maddi bhoomi), which is generally poor, good for irrigation and horticulture.

Rivers

Krishna river, which is the most important river of the district. It flows about 125 miles in the district. A dam is built across the river at Almatti, Bhima river flows in northern part of district for about 20 miles. It overflows in the rainy season and spreads over a wider area, which is thereby rendered extremely fertile land. In central part of district Doni river flows.

Economy

Farming and agriculture related business is the main occupation for many people in the district. Of the total geographical area of 10,530 square kilo-

metres, 7,760 square kilometres is available for cultivation which is 74% of the total area, while areas under forest account for only 0.19% of the total area. Only 17.3% of the net cultivable area is irrigated and the balance 82.7% of the area has to depend on the monsoon.

The major oilseed crops are sunflower, groundnut and safflower. Horticulture crops like grapes, pomegranate, ber, guava sapota, lime are also grown. A recent trend shows that there is a low shift towards fruit crops like Pomegranate and grapes of the total area of 8,610 square kilometres. Covered during 2002-03 cereals occupy about 55.2% by oilseeds 24.5% pulse 15.6% and other commercial crops like cotton and sugarcane about 4.8%. There is a slight shift towards commercial crops like cotton and sugarcane over last 2 years. The land holding pattern in the district indicates that small and marginal farmers account for 4% of total land holdings and 0.6% of the total land, semi-medium for 27.5% with 10.1% of total land while 68% of the holdings are above 20,000 m^2, accounting for 89.3% of land. Many small-scale industries are working in the district however no large-scale industry can be found in the district.

Classification of Labour Force	No. of Workers
Cultivators or Farmers	2,21,060
Agricultural Laborers (Non-Land Owners)	2,87,778
Artisans	17,776
Home based / Cottage Industries	18,232
Services and Other sectors	1,95,573

Education

Of late Bijapur is emerging as a hub for professional education. Previously (i.e., before the 1980s) there were very few professional educational institutions. Along with the professional colleges there are many colleges which provide under-graduate and post-graduate degrees in the faculty of arts, science and social-sciences. Many of these colleges except professional are affiliated to Rani Chennamma University Belagavi viz, SPVVS Sindagi, B.L.D.E.A'S Bijapur. Rani Chennamma University has a Post-Graduation Centre at Bijapur also. Engineering colleges are affiliated to Visvesvaraya Technological University viz, and SECAB and Medical colleges are affiliated to Rajiv Gandhi University of Health Sciences. viz, BLDEA's B M Patil Medical College, Hospital and Research Centre and Al-Ameel Medical College, Hospital and Research Centre, Sainik School, Bijapur and Karnataka State Women's University. Various post-graduate courses like MBA, MCA are conducted here. Additionally, Bijapur boasts of the only Sainik school in the whole state. This is a residential school preparing cadets for the Defence forces.

The Bijapur district is known for its temples, structural monuments, art and architectural heritages, archaeological sites and cave temples. With the objective to spread education in this area, Karnataka University opened its Post-Graduate Centre in 1993.

Karnataka State Women's University, established in 2003 in the city of Bijapur is the only Women's University in Karnataka dedicated exclusively for women's education. It is recognized under 2(f) and 12(B) of the UGC Act. Seventy women's colleges spread in twelve districts of North-Karnataka are affiliated to this University. The University offers various UG programs leading to bachelor's degree in Arts, Business Administration, Computer Applications, Commerce, Education, Fashion Technology, Home Science, Physical Education, Science and Social College of agriculture (Estd. 1990) under University of Agricultural Sciences, Dharwad is located 6 km away from city bus stand is one of the few institutes made for research on dry land agriculture.

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.

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

Notes:

Notes:

Notes: