

Meghalaya Green Campaign, 2015 - Award

This is to certify that Union Christian College

has been awarded with First/Second/Third Prize for best practice/innovative ideas in the Meghalaya Green Campaign 2015 which is part of World Environment Day Celebration in Ri-Bhoi District.



Deputy Commissioner
Ri-Bhoi District



Nodal Officer
Basin Development Unit

GREEN AUDIT REPORT 2019-2020

UNION CHRISTIAN COLLEGE



Conducted by:

Internal Quality Assurance Cell (IQAC)

EXECUTIVE SUMMARY

The green auditing of Union Christian College enables to assess the life style, action and its impact on the environment. This audit was mainly focused on greening indicators like water quality, water usage, consumption of energy in terms of electricity, plant species, waste management practices and carbon foot print analysis of the campus, etc.

The purpose of the audit was to ensure that the practices followed in the campus are in accordance with the Green Policy adopted by the institution. With this in mind, the specific objectives of the audit were to evaluate the adequacy of the management control framework of Environment Sustainability.

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1. Introduction

Union Christian College is one of the premier co-educational institutions offering Degree Courses in Arts, Science and Commerce streams. The College is run by the North East India Christian Council (NEICC), a conglomeration of the protestant Churches of North East India.

The College began with a humble begging on the 14th of August 1952. At present the College is a replica of Cultural Diversity of Northeast India catering to the academic needs of the students from the eight states (viz. Meghalaya, Assam, Nagaland, Tripura, Mizoram, Manipur, Arunachal Pradesh and Sikkim) of North-East India. Since 2015 the college also started enrolling students from other countries- Myanmar, Bangladesh, South Africa, Somalia, Zambia and Uganda.

College Motto:

- “VENITE AD VIVAM AQUAM” (Come to the Living Water).

Add-on Vision

- To empower the students for workplace and life.

Core Mission of the College

- To empower stakeholders for development, sustenance and enhancement of quality in life.

Add-on Mission

- Providing empowerment workshop and training to students that foster workplace readiness
- Providing empowerment counseling that builds stronger self -efficiency to face the challenges and learning needs of daily life.
- Providing students with facilities that help them in their vertical and horizontal progression.
- Inculcating qualitative improvement of teaching-learning, evaluation
- Retraining teachers for capacity building for empowering the students
- To promote knowledge and value-based education through academic excellence.
- To train students for self-employment.
- To inculcate spirit of leadership among the students
- To constantly improve the quality of academic inputs.
- To mould leaders to serve the Church, the North East, and the country as a whole, by equipping them with the ministry of the Church in a Christian setting, and provide quality education to all, irrespective of their diverse belief systems.

Map Location Of the College Campus



Coursed Offered:

The College runs 15 academic undergraduate courses (Honours and Pass Course) in Arts, Science, and Commerce Disciplines with 40% of its permanent staff having Ph.D. degree.

The College also runs Certificate courses in Food & Nutrition, Fashion Design & Interior Decoration, Beauty Parlour, Geographical Information System (G.I.S), Computer Courses and Food Management.

Affiliation & Recognition:

- ✓ The College is permanently affiliated to the North Eastern Hill University (Affiliation No. CD/A.5/94-95/1064-65 dated December 13, 1995)
- ✓ The College is recognized under Section 2(f) and 12(B) of UGC, Act 1958 (Recognition Letter No, F. No.1-1/2004 (CPP-I) dated 29 April 2009)
- ❖ **The student and faculty strength of the college is listed below:**

| | | |
|----|------------------------------|-------------|
| 1. | Number of Students | 989 |
| 2. | Number of Teaching staff | 63 |
| 3. | Number of Non Teaching staff | 30 |
| 4. | Total strength | 1082 |

❖ **Infrastructure:**

The college campus is about 170.2 acres. The built-up area of the college is 70 acres

| | Type of infrastructure | Number |
|-----|--------------------------------------|---------------|
| 1. | Academic block | 2 |
| 2. | Hostels (Boys and Girls) | 11 |
| 3. | Auditorium | 1 |
| 4. | Indoor stadium | 1 |
| 5. | Basket ball court | 1 |
| 6. | Volleyball court | 1 |
| 7. | Canteen | 2 |
| 8. | Guest house | 5 |
| 9. | Herbal garden | 1 |
| 10. | Chapel | 1 |
| 12. | Dispensary | 1 |
| 13. | Refractory (Boys and Girls) | 2 |
| 14. | Office/ Library | 1 |
| 15. | Post office | 1 |
| 16. | Staff Quarter | 13 |
| 17. | SRC office | 1 |
| 18. | NCC college office | 1 |
| 19. | Swimming pool | 1 |
| 20. | School (L.P, U.P& Higher secondary) | 1 |

2. GREEN AUDIT

Green Audit is a process of systematic identification, quantification, recording, reporting and analysis of components of environmental diversity of various establishments. It aims to analyze environmental practices within and outside of the concerned sites, which will have an impact on the eco-friendly ambience. Green audit can be a useful tool for a college to determine how and where they are using the most energy or water or resources; the college can then consider how to implement changes and make savings. It can also be used to determine the type and volume of waste, which can be used for a recycling project or to improve waste minimization plan. It can create health consciousness and promote environmental awareness, values and ethics. It provides staff and students better understanding of Green impact on campus. Thus, it is imperative that the college evaluate its own contributions toward a sustainable future. As environmental sustainability is becoming an increasingly important issue for the nation, the role of higher educational institutions in relation to environmental sustainability is more prevalent.

3. OBJECTIVES OF GREEN AUDIT OF THE COLLEGE:

The main aim objectives of this green audit is to assess the environmental quality and the management strategies being practice, followed and implemented in Union Christian College, Umiam Khwan. The specific objectives are:

- To assess the quality of the water from Wah Kharai , Umbir being supplied in Union Christian College Campus, Umiam Khwan.
- To assess Water usage in the campus.
- To check Energy consumption in the campus.
- To assess Solid waste management in the college campus.
- To assess the greenery of the college campus.
- To analyze the Carbon Foot Print.
- To suggest and recommend for better environmental sustainability practices in the college campus.

4. METHODOLOGY:

The purpose of the green audit in Union Christian College is to ensure that the practices followed in the campus are in accordance with the Green Policy. The methodology include:

- Physical inspection of the campus,
- Observation and review of the documentation.
- Interviewing key persons and data analysis, measurements and recommendations.
- Some data have also been taken from research works carried out by various science departments of the college.

5. KEY AUDIT FINDINGS AND OBSERVATION:

5.1 WATER QUALITY

Minor research project has been done by Chemistry department, UCC on the water quality analysis of Wah Kharai stream, Umbir, Ri bhoi district as this is the main source of water supply in the college campus. The water samples were collected from twelve different location every two months during the study period. It has been found that this study has reveal that the quality of water of the stream is safe for drinking and uses for daily activities.

The tabular data has been provided below:

Table : Physio chemical Water Analysis of Wah Kharai stream, Umbir, Ri bhoi district (Chemistry department by Dr (Mrs) Cornelia Mary Lyngdoh)

| Sl no | Parameters | Drinking water specification- WHO | |
|-------|-------------------------------|-----------------------------------|------------------------|
| | | Requirement - Acceptable Limit | Findings |
| 1 | Temperature | - | 15.8 - 24.4°C |
| 2 | pH | 6.5- 8.5 | 6.58 - 8.09 |
| 3 | Conductivity | 0.4 mS cm ⁻¹ | 38-211µS/cm |
| 4 | Turbidity | - | 0.01-0.07NTU |
| 5 | TDS | 500 | 24.6-135 ppm |
| 6 | Salinity | - | 0.01-0.009 ppt |
| 7 | Dissolved oxygen | - | 6.48-6.95 ppm |
| 8 | SO ₄ ⁻² | 250mg/l | 0.01-0.012ppm |
| 9 | NO ₃ ⁻ | 50 mg/l | Below detectable level |
| 10 | Cl ⁻ | 250mg/l | 0.01-0.012mg/l |
| 11 | F ⁻ | 1.5mg/l | Below detectable level |
| 12 | PO ₄ ⁻³ | 5 mg/l | Below detectable level |
| 13 | As | 0.01mg/l | Below detectable level |
| 14 | Pb | 0.05mg/l | Below detectable level |
| 15 | Cd | 0.005mg/l | Below detectable level |
| 16 | Cr | 0.05 mg/l | Below detectable level |
| 17 | Fe | 1.5 mg/l | Below detectable level |
| 18 | Zn | 5 mg/l | Below detectable level |
| 19 | Cu | 0.05 mg/l | Below detectable level |
| 20 | Acidity | - | 02.0 mg/l |
| 21 | BOD | <5mg/l | 1.0mg/l |
| 22 | COD | | 0.05-10.0mg/l |

5.2 WATER USAGE IN THE CAMPUS:

| Activity | Water used per activity (litres) | No. of times activity done each day | Average water used by a person each day (litres) | No. of people in the College using water | Total water consumption per day |
|--|----------------------------------|-------------------------------------|--|--|------------------------------------|
| Hands & face wash (hostellers) | 2- 4ltrs | 2 times/day | $6/2 \times 2 = 6$ ltrs | 522 | 522×6 litres = 3132ltrs |
| Bath (hostellers) | 30-40ltrs | 2 times/day | $70/2 \times 2 = 70$ ltrs | 522 | 522×70 litres = 36540ltrs |
| Toilet flush (hostellers) | 2 - 4ltrs | 4 times/day | $6/2 \times 4 = 12$ ltrs | 522 | 522×12 ltrs = 6264ltrs |
| Hands & face wash (Staff Quaters) | 3- 5ltrs | 2 times/day | $8/2 \times 2 = 8$ ltrs | 117 | 117×8 ltrs = 986ltrs |
| Bath (Staff Quaters) | 30-40ltrs | 2 times/day | $70/2 \times 2 = 70$ ltrs | 117 | 117×70 ltrs = 8190ltrs |
| Toilet flush (Staff Quarter) | 2 - 4ltrs | 4 times/day | $6/2 \times 4 = 12$ ltrs | 117 | 117×12 ltrs = 1404ltrs |
| Common Toilet flush (Staff) | 2 - 4ltrs | 3 times/day | $6/2 \times 3 = 9$ ltrs | 63 | 63×9 ltrs = 567ltrs |
| Common Toilet (students) | 0.4 - 0.8 ltrs | 2 times/day | $1.2/2 \times 2 = 1.2$ ltrs | 888 | 888×1.2 ltrs = 1065.6ltrs |
| Washing dishes and clothes (hostels) | - | - | - | 522 | 5220ltrs/day |
| Cooking & Washing dishes and clothes (Staff Quaters) | - | - | - | 117 | 450ltrs/day |
| Cooking Washing dishes (Boys and Girls Refractory) | - | - | - | - | 300ltrs/day |
| Lab uses | -- | - | - | - | 100ltrs/day |
| Total Water Usage | | | | | 64218.6Ltrs/day (approx) |

Approximately 64118.6 liters of water is used per day by the college for its different uses. The main source of water supplied is from the *Wah Kharai stream, Umbir*. Water from the public water supply is not much utilized in the college campus.

Huge amount of water is lost per day through the leaking of pipes and other misuses. This can be prevented. The amount of water lost through outlets can be recycled and utilized for gardening and toilet uses. Awareness programs for the management of sustainable water use will be highly beneficial in this college.

5.3.WASTE MANAGEMENT

A. Solid Waste Management:

Solid Waste management is important for an eco-friendly campus. These are the activities and action that are require waste from its inception to its final disposal. Different types of solid wastes in the college are generated, its collection and management are very challenging. The following data provide the details of the waste generated and the disposal method adopted by the college.

Total number of stakeholders in the college: 981

Generation of Solid waste - Class rooms, college office, auditorium, library, boys and girls refractory, canteen, Hostels, etc)

| Types of Solid waste | Particulars | Disposal method |
|-------------------------|--|---|
| a. Plastic waste | Pen, refill, plastic water bottles, wrappers, other plastic containers, print cartridges etc | Direct selling/Burning |
| b. E-waste | Computer , electronic parts. | E-waste are stored. Currently, there is no formal mechanism for disposing of e-waste. |
| c. Construction waste | Damage furniture Construction wood waste (Workshop) | Reuse after maintenance Direct burning |
| d. Bio-degradable waste | Food waste, organic waste, green waste | Feed on pigs, dump in open pits. There's no scientific manner to disposed of the waste. |
| e. Paper waste | Paper waste | Direct selling |
| f. Glass waste | Broken Glassware from labs | Broken Glassware are stored. Currently, there is no formal mechanism to dispose Glass waste. |
| g. Sanitary waste | 1. Sanitary Napkins 2. Diapers | Open pit and burn |

At present, the college does not have a proper solid waste management system.

- There is proper segregation of waste at source.
- Collection points are available but there is no specific arrangement for collecting recyclable waste.
- There is no mechanism up to date to collect compose waste separately as well to dispose compost waste in a scientific manner.

Existing waste management methods practiced

- Cleaning the campus on daily basis.
- Waste bin's in placed in corridors, office and staff rooms, in and around the college campus.
- Open pit is used for direct burning composting can be used to treat the bio degradable waste.

B. Waste Water (Chemical waste)

- At present, the college have managed the chemical waste water coming out from different laboratory water outlet pipes in the college campus. Underground soaking pits were made where the waste water soak and slowly reaches ground.

5.4 ENERGY USAGE:

Many types of electrical appliances are being used in the college like Computers, laptops, CFL bulbs, Photocopiers, screen projector, Incandescent bulbs, Tube lights, Televisions, CCTV, other Electrical Equipments, etc. These equipment consumes a lot of energy depending on the time uses. Average Electricity charges per year is Rs.54521/year.

Current saving methods adopted in the college:

- Turn off electrical equipments when not in use.
- Use computers and electronic equipments in power saving mode.

Energy saving through the replacement of incandescent bulbs to LED light will be a good energy management system for the college. The contribution of uses of LED bulbs and LED tubes to the net power consumption will be lowered compared by using other bulbs and tube lights. The authority keep on replacing the old filament bulbs, CFL bulbs and tube lights by low energy consuming LED bulbs and LED tubes.

The college authority is planning to install more solar lights to reduce energy consumption. A hybrid source of energy comprising solar and wind type of non-conventional category of energy will be a good energy management system for the college. 4 solar street light have been installed in the college campus but they are not in good condition.

Awareness programs for the stakeholders to save energy may also increase sustainability in the utilization of various energy source. Although staff are encouraged to switch off their own lights, monitors and other equipment.

5.5 GREEN CAMPUS:

There are 84 different types of plants in the campus. Plant species in the College Campus comprise the following species

| SI. NO | SCIENTIFIC NAMES | COMMOM NAMES |
|--------|-----------------------------------|-------------------------|
| 1 | <i>Schimakhasiana</i> | Khasischima |
| 2 | <i>Cryptomaria japonica</i> | Japanese Cedar |
| 3 | <i>Jacaranda sp</i> | Fern Tree |
| 4 | <i>Pinus kesiya</i> | Khasi Pine |
| 5 | <i>Pinusroxburgii</i> | Chir Pine |
| 6 | <i>Michelia champaca</i> | Joy Perfume Tree |
| 7 | <i>Bixa orellia</i> | Lipstick Plant |
| 8 | <i>Dillenia indica</i> | Elephant Apple |
| 9 | <i>Engelhardti aspicata</i> | Mauwa |
| 10 | <i>Nauclea orientalis</i> | Cheesewood |
| 11 | <i>Eurya japonica</i> | East Asian Eurya |
| 12 | <i>Ligsutrumlucidum</i> | Broad-Leaf Privet |
| 13 | <i>Bauhunia variegata</i> | Mountain Ebony |
| 14 | <i>Bauhunia acuminata</i> | White Orchid-Tree |
| 15 | <i>Mallotussp</i> | Kamala Tree |
| 16 | <i>Calliandrae marginata</i> | Dwarf Powder Puff |
| 17 | <i>Plumeria rubra</i> | Frangipani |
| 18 | <i>Erithryna reticulata</i> | Coral Tree |
| 19 | <i>Syzigium polyanthum</i> | Indian Bay Leaf |
| 20 | <i>Quercussp</i> | Oak |
| 21 | <i>Alnus nepalensis</i> | Nepalese Alder |
| 22 | <i>Prunus cerasoides</i> | Wild Himalayan Cherry |
| 23 | <i>Symplo cosp</i> | Sweet leaf |
| 24 | <i>Artocarpus lakoocha</i> | Monkey Fruit |
| 25 | <i>Lagerstroemia indica</i> | Common Crape Myrtle |
| 26 | <i>Artocarpus heterophyllus</i> | Jackfruit |
| 27 | <i>Magnolia sp</i> | Magnolia |
| 28 | <i>Gentiana sp</i> | Gentian |
| 29 | <i>Pouzolzia sp</i> | Graceful Pouzolz's Bush |
| 30 | <i>Sonchusoleraceus</i> | Sow Thistle |
| 31 | <i>Spilanthesacmella</i> | Toothache Plant |
| 32 | <i>Crassocephalumcrepidioides</i> | Red flower leaf |

| SI. NO | SCIENTIFIC NAMES | COMMOM NAMES |
|--------|--------------------------------|---------------------------|
| 33 | <i>Oenotheraroseus</i> | Pink Evening Primrose |
| 34 | <i>Dichrocephalasp</i> | Bicolor Button weed |
| 35 | <i>Polygonumcapitatum</i> | Pink-Head Knot weed |
| 36 | <i>Fagopyrumesculentum</i> | Buckwheat |
| 37 | <i>Heracleumsphondylium</i> | Hogweed |
| 38 | <i>Dryopterissp</i> | Wood Ferns |
| 39 | <i>Elaphoglossumaemulum</i> | Creeping Tongue fern |
| 40 | <i>Mikaniamicrantha</i> | Bittervine |
| 41 | <i>Siegesbeckia</i> | St. Paul's Wort |
| 42 | <i>Crotalaria sp</i> | Rattle weed |
| 43 | <i>Polygala persicariflora</i> | Knotweed Leaved Milkwort |
| 44 | <i>Borreriaocymoides</i> | Purple Leaved Button Weed |
| 45 | <i>Phyllanthusamarus</i> | Stonebreaker |
| 46 | <i>Eriosema</i> | Pale Yellow Eriosema |
| 47 | <i>Salomoniacantoniensis</i> | Chinese Salomonias |
| 48 | <i>Cyanotis</i> | Creeping Cradle Plant |
| 49 | <i>Triumfetta pillosa</i> | Hairy Burr-Bush |
| 50 | <i>Torenia</i> | Wishbone Flower |
| 51 | <i>Inulacappa</i> | Sheep's Ear |
| 52 | <i>Elephantopus torrentosa</i> | Ironweed |
| 53 | <i>Bidens pillosa</i> | Black-Jack |
| 54 | <i>Cirsium</i> | Thistles |
| 55 | <i>Vernonia cinerea</i> | Ash Coloured Fleabane |
| 56 | <i>Achyranthes aspera</i> | Chaff-Flower |
| 57 | <i>Curculigo archioides</i> | Golden Eye-Grass |
| 58 | <i>Barleria</i> | Porcupine Flower |
| 59 | <i>Cardamine hirsuta</i> | Hairy Bitter cress |
| 60 | <i>Cyathea latebrosa</i> | Tree Fern |
| 61 | <i>Emilia sonchifolia</i> | Lilac Tassel flower |
| 62 | <i>Convolvulus pennatus</i> | Morning Glory |
| 63 | <i>Kaempferia galangal</i> | Aromatic Ginger |
| 64 | <i>Lindernia crustacea</i> | Malaysian False Pimpernel |
| 65 | <i>Ludwigia octovalvis</i> | Mexican Primrose-Willow |
| 66 | <i>Murdannia spicata</i> | Asiatic Dew flower |
| 67 | <i>Euphorbia pulcherima</i> | Poinsettia |

| SI. NO | SCIENTIFIC NAMES | COMMOM NAMES |
|--------|------------------------------|-------------------------|
| 68 | <i>Randiadumetorum</i> | Kaarai |
| 69 | <i>Sidaacuta</i> | Wireweed |
| 70 | <i>Solanumtorvum</i> | Turkey Berry |
| 71 | <i>Tithoniadiversifolia</i> | Tree Marigold |
| 72 | <i>Spiranthesspiralis</i> | Autumn Lady's-Tresses |
| 73 | <i>Adiantumtenerum</i> | Brittle Maidenhair Fern |
| 74 | <i>Scutellaria</i> | Blue Skullcap |
| 75 | <i>Mazuspumilus</i> | Japanese Mazus |
| 76 | <i>Viola inconspicua</i> | Chinese Violet |
| 78 | <i>Cuphea</i> | Cigar Plants |
| 79 | <i>Stachytarphetaindica</i> | Indian Snakeweed |
| 80 | <i>Cissus</i> | Adamant Creeper |
| 81 | <i>Clerodendrum serrata</i> | Bharangi |
| 82 | <i>Zephyranthes citrine</i> | Yellow Rain Lily |
| 83 | <i>Holmskioldia sanguine</i> | Chinese Hat Plant |
| 84 | <i>Ipomoea indica</i> | Blue Morning Glory |

List of Medicinal Plants in the College Herbal Garden:

| SL NO. | SCIENTIFIC NAME | LOCAL NAME |
|--------|--------------------------------------|---------------------|
| 1 | <i>Centella asiatica (L.) Urb.</i> | Khliang Syiar |
| 2 | <i>Mimosa pudica L.</i> | Kynbat Samthiah |
| 3 | <i>Oxalis corniculata L.</i> | Sohkhai Khnai |
| 4 | <i>Thuja occidentalis L.</i> | Tuja |
| 5 | <i>Ocimum sanctum L.</i> | Tulsi |
| 6 | <i>Allamanda blanchetii</i> | Angel's Trumpet |
| 7 | <i>Alternanthera L.</i> | Joyweed |
| 8 | <i>Bixa orellana L.</i> | Lipstick Tree |
| 9 | <i>Clerodendrum thomsoniae Balf.</i> | Bleeding Heart Vine |
| 10 | <i>Cupressus L.</i> | Monterey Cypress |
| 11 | <i>Euphorbia Pulcherrima L.</i> | Christmas Gaschi |
| 12 | <i>Exbucklandia populnea</i> | Dieng Doh |
| 13 | <i>Ficus benjamina L.</i> | Banij |
| 14 | <i>Galinsoga Ruiz & Pav.</i> | Gallant Soldier |
| 15 | <i>Grevillea robusta A. Cunn.</i> | Silver Oak |
| 16 | <i>Holmskioldia sanguine Retz.</i> | Jermei-Snam-Khmut |
| 17 | <i>Jacaranda mimosifolia D. Don</i> | Black Poui |
| 18 | <i>Cassia L.</i> | Golden Shower Tree |
| 19 | <i>Livistona jenkinsiana Griff.</i> | Fan Palm |
| 20 | <i>Plumeria acuminata Ait.</i> | Champa |
| 21 | <i>Cymbopogon Spreng.</i> | Lemon Grass |

| | | |
|----|---|--------------------|
| 22 | <i>Terminalia arjuna</i> (Roxb.) Wight & Arn. | Arjuna |
| 23 | <i>Agave</i> L. | Agave |
| 24 | <i>Hedychium</i> J. Koenig | Ginger Lily |
| 25 | <i>Monstera</i> Adans. | Window Leaf |
| 26 | <i>Alpinia</i> Roxb. | Alpinia |
| 27 | <i>Spilanthes paniculata</i> DC. | Jasat |

Green Practices

Various Green Awareness Practices were being conducted by the College, National Service Scheme such as cleaning drive, planting of trees and environmental awareness workshop in order to ensure environmental sustainability inside the campus.

5.6. CARBON FOOT PRINT ANALYSIS:

- **Use of any other fossil fuels in the college:** Using firewood in the College refractory
- **Number of persons using College bus:** 80/day
- **Number of two wheelers used:** 7
 - Distance travelled: 20-40 km (approx)
 - Quantity of fuel used: 1-1½Ltr s
- **Number of cars used by Staff :** 51
 - Average Distance travelled: 20-40 km (approx)
 - Average Quantity of fuel used: 1-2 Ltrs
- **Number of generators used per day:** 3 (50 KVA Kirloskar power generators) (Using 56 hrs/Month (aprox.)
- Amount of fuel used: 1200 ltr/month (aprox)

Burning of fossil fuels is the main source and cause of carbon dioxide release to the atmosphere. It is contributing to the global warming and increasing the pace of climate change.

- The use of firewood in the college refractory is very high.
- Carbon dioxide release for the stakeholders to reach the college is very high. The use of generator for long hours in the college campus contributes to the increase in carbon dioxide in the atmosphere.

More trees are planted in the campus to make a source of sink for the carbon dioxide and for other green house gases.

6. RECOMMENDATIONS/CONSOLIDATION OF AUDIT FINDINGS (CRITERIA WISE)

Water

- Remove damaged taps and install sensitive taps.
- Establish rain water harvesting systems on rooftop or ground.
- Awareness programs on water conservation should be conducted.
- Install display boards to control over exploitation of water.
- Installation of low flush toilets that uses significantly less water than full flush water.

Waste

- A scientific model for solid waste treatment system should be established in the college.
- Initiation of Practice of solid waste segregation should be implemented among the staff as well as students.
- Provide sufficient, accessible and well-publicized collection points for recyclable waste, with responsibility for recycling clearly allocated.
- Disposal of solid waste should be done in a scientific manner.
- Installation of sanitary napkin incinerator in girl's hostel.
- Always purchase recycled resources where these are both suitable and available.
- A composting pit is highly essential for the treatment of bio-degradable waste generated from the canteen, hostels, food leftover by students and staff, office, and from the college campus cleaning process
- Establish an E-waste collection centre in campus
- Establish a plastic free campus
- Avoid plastic/thermocool plates and cups in the college level or department level functions.
- Plastic waste can be collected separately and given to the vendors and sold to plastic collection center and can be use for recycling.
- Paper waste can be reduced by maximizing e-communication and e-learning.

Energy

- Conduct more save energy awareness programs for students and staff.
- Installation of more solar panels and other renewable energy sources with proper maintenance.
- Replace computers and TVs with LED monitors.
- Use of laptops over the desktops computers.
- also help reducing energy consumption.
- More energy efficient fans should be replaced.
- Observe a power saving day every year.
- Automatic power switch off systems may be introduced.
- Use power inverter system in every department and college office.
- Infrastructural changes that allows maximum natural light but minimizes heat in-grace help in reducing the use of electricity.

Green Campus

- Planting more trees inside the college campus.
- All trees should be named scientifically and put tags on the different types of trees in the college campus to generate enthusiasm for learners.
- Grow potted plants at both verandah and class rooms.
- Not just celebrating environment day but making it a daily habit.
- Beautify the college building with indoor plants.
- Environment or nature club for making campus more green.
- Encouraging students not just through words, but through action for making the campus more green.
- Conducting competitions among departments for making students more interested in making the campus green.

Carbon footprint

- Establish a system of car pooling among the staff to reduce the number of four wheelers coming to the college.
- Encourage staff to walk inside the college campus.
- Establish a more efficient cooking system to save trees and well to reduce carbon dioxide release in the air.
- Uses of generators every day should be discouraged.
- Use power inverter system in every department and college office.
- Reduction of GHGs can be achieved by plantation. It is a widely accepted solution for reduction of carbon foot print on campus. The plants selected must be suitable to the soil and climatic conditions. Indigenous plants which help in building soil fertility and coppicing ability are suitable for the academic campus.

7. SUGGESTIONS

Some of the important suggestions are :

- To prepare a proper action plan for green auditing by involving the different department, different committees of the college, etc.
- Expand work among teachers and students to assist in finding solutions to environmental problems.
- Increase reduce, reuse, and recycle education on campus.

8. CONCLUSION

Green audit, also referred as environmental audit should be implemented by the college. One should understand the process of environmental auditing. It is a continuous process. Once we learnt about the short fall about the efforts towards environmental conservation, we can one can plan about some of the initiatives mentioned above. Green audits can “add value” to the management approaches being taken by the college. A responsible way in utilizing economic, financial, social and environmental resources can help in environmental stability. There is scope for further improvement, particularly in relation to waste, energy and water management.

Even though the college does perform fairly well, the recommendations in this report highlight many ways in which the college can work to improve its actions.