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CAMPUS ENVIRONMENTAL AUDIT: A CASE STUDY OF LADY KEANE COLLEGE, SHILLONG

Environmental Science

Dr. D. G. Marbaniang
Department of Chemistry, Lady Keane College, Shillong

ABSTRACT

In this audit, 17 indicators were selected covering a wide range of environmental impacts. We examine the performance of the college on each of these indicators, and highlight what the college has done and also offer recommendation about how the college can reduce its environmental impact within each indicator. The college has adopted many green technologies and concepts like solar heaters and lighting, rain water harvesting, recycling systems, wastes segregation, wastes management and composting of wastes, stopping the burning of wastes to reduce air pollution, banning on the use of plastic in the college campus, conservation and increase of the college greenery, constitution of a swachhta team for green implementation and monitoring and activities to increase awareness on the need to protect the environment. However, there are areas in which the college needs to improve like the management of energy, water, carbon footprint, hazardous wastes, treatment of liquid effluent before releasing to the environment. The college has a long way to go before it can completely be labeled as a 100% Eco-friendly College. Other indicators and benchmarks needs to be looked into. But with the attitude and dedication the college is having, we believe this objective will be achieved sooner than later.

KEYWORDS

Audit, Benchmarks, Campus, Energy, Green, Management

INTRODUCTION

The extensive pollution and degradation of the environment by our day to day activities has reached a point where we cannot just sit back and act as if everything is alright. Degradation of the environment is proved to be detrimental to all living being including man. The magnitude of the negative impact has prompted world governments, international environmental protection bodies, NGO's and concern individuals to speak up and unite against this common threat. The growing awareness of environmental issues was reflected politically in the first United Nations conference on the Human Environment in Stockholm in 1972, and the subsequent creation of the United Nations Environment Programme (UNEP).The United Nations Environment Programme defines sustainable development as “Development which improves people's quality of life, within the carrying capacity of earth's life support systems . Our thinking ought to shift towards sustainability.

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. If self enquiry is a natural and necessary outgrowth of a quality education, it could also be stated that institutional self enquiry is a natural and necessary outgrowth of a quality educational institution. 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. (NMIT,2018)

Colleges and higher educational institutions have broad impacts on the world around them, both negative and positive. The activities pursued by colleges can create a variety of adverse environmental impacts. But colleges are also in a unique position as educational institutions to be leaders in pursuing environmentally sustainable solutions (Cochran, Long, Miller, Pimm, & Winters, 2004).

Lady Keane College, a pioneer in the field of women's education located in Shillong, Meghalaya in the North- Eastern region of India, was established in the year 1935. With a legacy of eighty five years of eventful existence, the college has to its credit a record of very distinguished service rendered to the cause of upliftment and empowerment of women through the spread of liberal education. The institution today, in many ways, is synonymous with the socioeconomic transformation taking place in the region and beyond. The institution's commitment to quality found its stamp of approval when it was awarded "A" Grade with the quality profile standing at 3.09 (CGPA) on a 4 point scale by the National Accreditation and Assessment Council (NAAC), Bangalore which is the apex autonomous agency entrusted with the responsibility of assessing and accrediting institutions of higher learning in the country 0n 2014. (LKC, 2020)

A relationship study between Lady Keane College and its environment is initiated with an aim to identify potential sources of positive and negative impact the college through its activities may have on the environment, to suggest remedial measures to contain any potential hazard so as to make the college a green and eco-friendly college.

MATERIAL AND METHODS

In this study, the focus is made on 18 (Eighteen) indicators, covering a wide range of environmental impacts. We examined the performance of the college on each of these indicators, and highlight what the college has done and we are going to offer recommendation on how the college can reduce its environmental impact within each indicator. The indicators are:

1. Campus Energy Usage
2. Green House Gas Inventory
3. Carbon Footprint
4. Water Usage
5. Ground Water Quality
6. Water Harvesting
7. Water Treatment
8. Water Analysis and Monitoring
9. Recycling Systems
10. Indoor and Outdoor Air Quality
11. Hazardous Material and their Management
12. E-Wastes
13. Conservation and Restoration Activities
14. Campus Culture and Environmental Consciousness
15. Institutional Research towards Environmental Monitoring, Assessment and Protection.
16. Creating Awareness.
17. Digitalization of the College.
18. Constitution of Swachhta Team

The study area includes the college academic blocks, administrative block, botanical garden, canteen, hostel and the staff's quarters. For the sake of convenience we have divided the study area into two sections, the general campus area and the hostel area. The study is from the year 2016-2020

The methodologies for carrying out the study involve data collection (using questionnaires), data generation (monitoring work), data analysis and interpretation.

RESULTS AND DISCUSSION

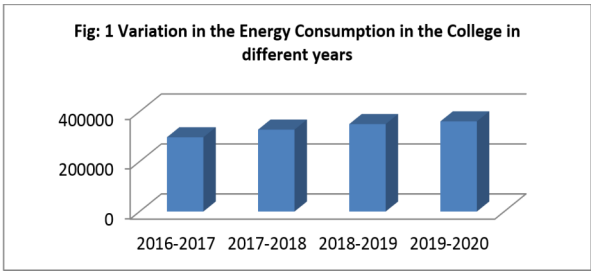
Data on the different indicators were collected, compiled and analyzed to understand the impact that the college has on the environment and vice versa. The following are the observations and findings of this audit:

Campus Energy Usage:

The College has both grid and off grid energy supply. The grid energy is supplied by the Meghalaya Power Distribution Corporation Limited, Shillong whose energy is generated by hydroelectricity dams and the off grip is solar based. The energy bill for different years was obtained from the accounts section of the college and the college hostel.

The total grid energy load for the general campus area is 56 kW. It is observed that there is a fluctuation in the consumption of energy as evident from the electricity bills for different months of different years. Two electricity meter bearing Consumer ID 52000070560 and 52000070652 were disconnect during the year 2019-2020 and 2017-2018 respectively, however, the rent for the meter is still being paid.

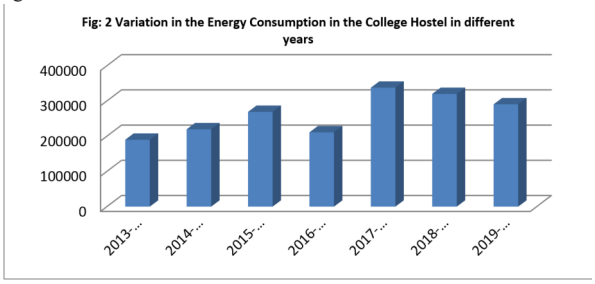
As can be seen from Fig:1 below, there is a steady increase in the consumption of electricity as we move from one year to the other. However, the increase looks to have reached a plateau in 2019-2020 as the college is becoming more and more aware and responsible towards energy consumption.



The college however, should try to adopt more green and eco-friendly technologies like replacement of all light bulbs with LED and to put in place a concrete energy management plan. Installation of Solar Power Plants in the General Campus Area of the College should also be considered.

An average of 50,000 kWh of grid electricity is consumed on yearly basis which translates into a carbon emission of 2.23 ton of CO2 in the general campus area The conversion factor used here includes the carbon generated at the production and transmission stages (Sivaram, Gowdhaman, Davis, & Subramanian, 2015) In the Hostel Area, the total energy load is 61 kW (Grid energy) and 4.5kW (Solar Energy). There is also a fluctuation in the cost of consumption of energy. In the month of January to February, 2018, there was a sudden increase in the energy cost which was trace to be due to the installation of new transformer.

From Fig: 2, it is seen that there is an increase consumption of energy in the college hostel from one year to the other. However, in the year 2016-2017 when the college has adopted the use of renewable source of energy like solar panel for water heating and lighting, the energy consumption is observed to decrease. But in the year 2017-2018, the energy consumption increases again which is due to the fact that the college has installed a new transformer with an increase load capacity. It can also be seen that the consumption of energy starts to decrease again as we move from 2017-2018 to 2019-2020.



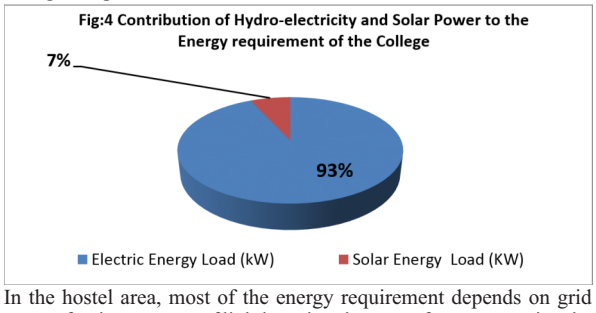
The college is contemplating to adopt more green technology like replacement of lighting bulbs with LED technology, increase installation of solar water heater and solar lighting (Fig:3).

Fig: 3 Figure of solar powered water heaters and solar powered lighting systems

The use of Solar powered water heater has enable the college to do away the use of fossil fuel (Wood and charcoal) for heating water which are major polluters of the environment.

The total grid energy charges in both the college and hostel area from the year 2016-2020 is Rs 24,95,499/- while the total cost for installation of the Solar Power Plant of 4.5 kW and its maintenance in the hostel area from the year 2016-2020 is Rs 16,39,044/-. At present, we can see that the cost of solar installation and its maintenance is a quite high as compare to the grid energy.

But, the use of Solar Power has enabled the College in the hostel area to reduce the use of grid energy. However, there is a need to increase the capacity solar powered energy supplied. At present, we can see in Fig: 4 that the solar energy contribution to the total energy requirement in the entire college is just 7% of the total energy requirement in the entire college campus.



In the hostel area, most of the energy requirement depends on grid energy for the purposes of lighting, charging, use of geyser, running the water pumps and heating kettle in the guest rooms, etc. While solar energy is use only for the lighting rooms in Block IX & X and heating water. The capacity of the solar water heater installed in the block X - XII is 8500 LPD.

Greenhouse Gas inventory:

There are many activities with potential for Greenhouse gas production in the college and these are observed to be the following:

i. The use of diesel generator at times when there is no power supply.
ii. The use of diesel for cooking.
iii. Burning of wood and charcoal.
iv. Vehicular emission in the college campus and
v. The burning of wastes.

As mentioned earlier, the college is trying to shift its energy dependence on green technologies so as to reduce and protect the environment. The college has taken steps to stop the burning of any type of wastes in its premises. The use of wood and charcoal for cooking purposes are slowly being phase out and the college uses on diesel and LPG for this purpose.

A study on the concentration of suspended particulate matter during working hours in the college campus was carried out by the B.Sc Chemistry Honours students (in 2013) and they reported that the concentration of SPM was well below the permissible limit. This work was published in the Keanean Journal of Science Vol.2, 2013, page:57-62. (Marbaniang, Nonglait, Thabah, Wahlang, & Mawlong, 2013)

On 2018, the Ambient Air Quality monitoring at Lady Keane College was carried out by Meghalaya State Pollution Control Board and all the parameters monitored were found to be within the prescribed limits of Ambient Air Quality Standards as per EPA notification GSR 826(E), Dated: New Delhi, the 16th November, 2009.

The use of a generator is important and a necessity in order to provide

un-interrupted learning and teaching experience. However, diesel powered generator are a pollution problem, hence the college has to explore others sources of power back up which are eco-friendly.

Carbon Footprints:
Carbon footprint is a parameter used to calculate green house gas emissions in order to understand the impact of the different activities of the college/institution to the environment. It also helps in minimizing consumption of energy and reduces emissions of green house gases.

Emission Scenario:
In the general campus area, an average of 50,000 kWh of grid electricity is consumed on yearly basis which translates into a carbon emission of 2.23 ton of CO2. While in the hostel area, an average of 40,000 kWh of grid electricity is consumed on yearly basis which translates into an annual carbon emission of 1.79 ton of CO2. The conversion factor used here includes the carbon generated at the production and transmission stages. (Sivaram, Gowdhaman, Davis, & Subramanian, 2015).

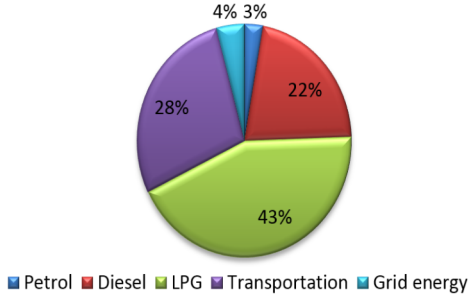
Most of the staffs and some students would come to the college on their own vehicles. Taking the average of 50 vehicles commune to the college daily, and each vehicle travels an average of 10kms daily to the college and considering that 5litres petrol will cover 100kms, the average annual CO2 emission by transportation amounts to 11.960 Tonnes of CO2. (Sivaram, Gowdhaman, Davis, & Subramanian, 2015).

The college is using diesel for cooking (in the hostel area) as well as for power back up during power cuts (in both the hostel area and the general campus area). The amount of diesel used per month for cooking is about 50litres per month and for power back is about 300litres per month in the entire campus. The average annual CO2 emission by the combustion of diesel amounts to 9.240 Tonnes(Sivaram, Gowdhaman, Davis, & Subramanian, 2015).

The college is also using petrol to run the gas plant in the chemistry laboratory in order to generate gas for performing the chemistry practical. The chemistry department uses about 50 litre of petrol per month and this amounts to 1.196 Tonnes of CO2 produced annually (Sivaram, Gowdhaman, Davis, & Subramanian, 2015).

The college canteen uses about 7 LPG (of 19kg capacity) cylinders per week for the purpose of cooking and this correspond to 18.497 Tonnes of CO2 produced annually (Sivaram, Gowdhaman, Davis, & Subramanian, 2015).

Fig:5 Contribution from different sources to the annual 40.13 Tonnes Carbon Footprint (CO_2) produced by Lady Keane College, Shillong

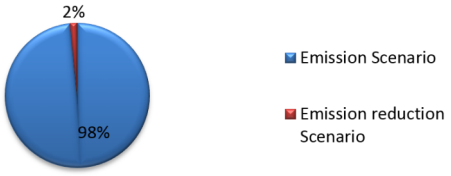


Emission Reduction Scenario:
In the Hostel area of the college, a 4.5kW solar power capacity is installed and this can reduced the amount of CO2 emitted by 0.18 tonnes (Sivaram, Gowdhaman, Davis, & Subramanian, 2015).

The college has installed 10 solar powered street lights in the general college area of 22 watts each. The annual reduction of CO2 due to this installation is 8.8Kg or 0.0088 Tonnes.

In the entire college campus there are approximately 130 matures trees with an average diameter of 27cm. According to research conducted at the school of Forestry of the Bogor Agricultural Institute, Indonesia, a mature tree with a crown diameter measuring 15meters absorbed 28.5 tonnes of CO2 annually. So the CO2 sequestrated annually in the College campus is 0.48 tonnes (Sivaram, Gowdhaman, Davis, & Subramanian, 2015).

Fig:6 Comparison of the Carbon Footprint emission and reduction (CO_2 in tonnes) in Lady Keane College, Shillong

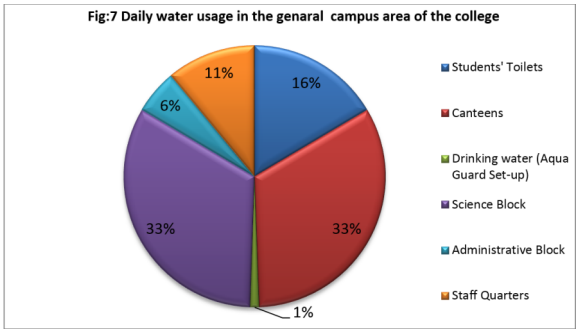


From Fig:6, we can see that the college is faced with a great challenge ahead and it has to come up with green innovations in order to reduce its carbon footprint.

Water Usage:
The College is solely dependent on ground water to meet the daily water requirements.

In the general campus area, the college has installed 6500Litres capacity water tanks to meet the different water needs. On an average, during a full academic session, the college utilizes about 9100 litres per day water which is utilized for various purposes as shown in the figure below:

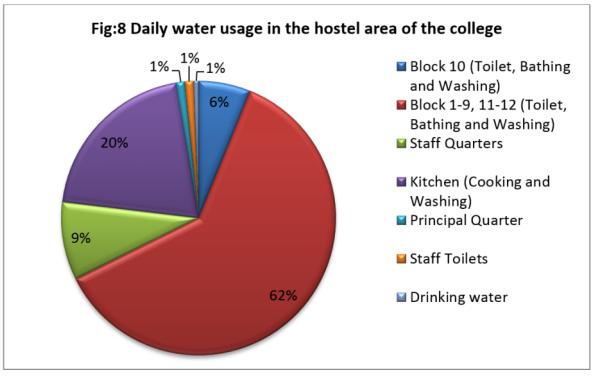
Fig:7 Daily water usage in the genaral campus area of the college



It can be seen from the fig:7, that the consumption of water is highest for the Science Block (33%) and Canteen(33%), followed by the Toilets for students (16%), Staff Quaters (11%), Administrative Block (6%) and finally by Drinking water (via. installed aqua guard system) (1%). The high water consumption by the Science Block is due to the on-going practical classes and the preparation of distilled water which requires a large quantity of water to cool the distillation condenser. This observation impress upon the need to have a centralized water distillation unit. This will help the management to control the wastage of water and also to conserve energy.

The hostel area has installed about 50,000Litres capacity water tanks to meet the different water needs. On an average, during a full academic session, the college utilizes about 48,775 litres per day ground water which is utilized for various purposes as shown in the fig:8 below:

Fig:8 Daily water usage in the hostel area of the college



It can be seen that most of the water is being used for bathing, washing and for toilet by the hosteller (~68%) i.e., in Block1-12. The water requirement in the hostel kitchen constitutes 21% while the Principal's quarter and the Staff's quarters water requirement is 1% and 9% respectively. The water consumption for staff toilets (Gents & Visitors) and drinking water is also 1% each.

From the above observations, it is understood that ground water is heavily exploited in the College Campus. If we consider five(5)

working days (Monday to Friday) in a week and 10 working months (February to November), then the quantity of water that is being utilized by the college annually amounts to 11575m3 or 1.1575 Hectare meter. The net annual ground water availability in the East Khasi Hills District was reported to be 36242 Hectare meter by Central Ground Water Board in 2013(Islam, Ferdous, & Begum, 2014) which was calculated using the Rainfall Infiltration Method. Hence, the college utilizes about 0.0032% of the available ground water annually. This consumption cannot be overlook considering the increase consumption by the populace of the district and the decrease in the recharge rate of ground water. The college has to do its part in conserving this precious resource by increasing the exposed surface area for ground water recharge and by exploring a supplementary alternative to the use of ground water.

Ground Water Quality

The physico-chemical quality of the ground water used in the college was analyzed. Twenty three parameters were determined and the observed readings are recorded in the table below. Except for low pH and high concentration of Fe and Total Coliform (which can be treated), the rest of the parameters are well within the prescribed guidelines for drinking water.

Seasons	Parameters Tested									
	Temperature (^{0}C)		pH	Conductivity (μScm^{-1})	TDS (mg/L)	Turbidity (NTU)	Alkalinity (mg/L)	Total Hardness (mg/L)	Cl (mg/L)	Ca (mg/L)
	Air	Water								
Winter	19.5	19.5	4.89	80.81	72.73	132	10.0	22.2	13	8.4
Pre Monsoon	19.0	19.5	4.8	120.0	108.0	0.2	8.0	19.9	18	12.7
Post Monsoon	16.5	18.0	4.7	70.0	63.0	0.1	12.0	21.0	10.0	6.1

Seasons	Parameters Tested								
	Mg (mg/L)	Fe (mg/L)	Mn (mg/L)	Na (mg/L)	K (mg/L)	F (mg/L)	COD (mg/L)	Total Coliform (MPN/100ml)	Dissolved Oxygen
Winter	3.3	1.56	0.3	6.6	BDL	BDL	3.0	123.3	7.5
Pre Monsoon	1.8	0.9	0.4	4.2	1.2	BDL	BDL	130.0	6.6
Post Monsoon	3.6	0.2	0.4	1.2	0.78	BDL	3.0	23.0	7.2

Seasons	Parameters Tested									
	BOD (mg/L)	No_2 (mg/L)	No_3 (mg/L)	Po_4 (mg/L)	So_4 (mg/L)					
Winter	2.1	0.008	0.196	0.002	0.004					
Pre Monsoon	0.7	0.08	0.19	0.002	0.004					
Post Monsoon	1.8	0.01	0.15	BDL	0.003					

Water Harvesting:

The college has initiate Rain Water Harvesting in the hostel area. There are eight (8) rain water harvesting unit that has been installed which has proved to be a blessing in time of water scarcity (Fig:9).

Fig 9: Rain water harvesting tanks in the College Hostel

However, in the general campus area, there are no Rain water Harvesting units installed. Harvesting of rain water will further reduce the college dependency on ground water which in turn is dependent on electricity to run the pumps. This will lower the energy consumption of the college. Ground water is one of the resources which is heavily exploited and with climate change many-a-time the ground water does not get recharge. Turning our attention to the harvesting of rain water will help us protect the precious ground water. This needs to be extended to the whole of campus.

Water Treatment:

The college has taken the initiative to install a Water Treatment Plant for the treatment of waste water from the canteen kitchen, paper recycling unit and from the science blocks before releasing into the environment.

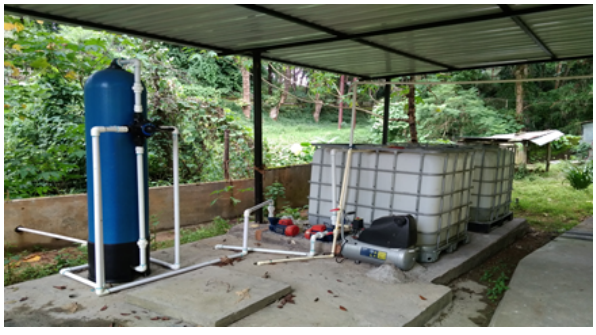


Fig: 10 Figure of Water Treatment Plant in the college

Water analysis and monitoring:

The Department of Chemistry had set up a water testing lab in the department to analyse the water before and after the treatment process to understand the efficiency of the treatment procedure adopted. The lab is also equipped to test soil samples.

Recycling Systems:

From the data collected, it is observed that the college has initiated the following recycling unit:

***I. Paper Recycling*:** The College has in place a paper recycling unit which is operational. Being an educational institution the college has a lot of raw material (i.e., Paper) in which it is trying to recycle to the fullest extend so as to make the college self-sustained with regards to its paper needs.

***ii. Wastes Recycling*:** The College is promoting the concept of wastes segregation. This is done by putting up awareness billboards and bins to store the segregated wastes in different location inside the campus so as to make everyone aware and know what and how to segregate the different types of wastes. Solid wastes are being segregated and

manage to some extend in the campus and the rest is managed in collaboration with the Shillong Municipality Board. The organic food wastes from the hostel and canteens are being converted into organic manure through Vermi-Composting Unit managed by the Department of Zoology in the Campus. This vermi-composting unit is also operational.

***iii. Water Treatment Recycling*:** The science departments of the college are on a daily basis conducting routine practical experiments which have the potential to cause serious problems to the environment. The discharge of acids, bases, heavy metals, organic compounds, culture media, etc are of great concern. Therefore, the college has installed a water treatment plant in its campus to ensure that whatever liquid effluent is released from the various departments to the environment is safe and meet the safety guidelines. The college should also aim to reduce the release of water and increase the re-use of the treated water.

Indoor and outdoor air quality:
The college has sought the help of the Meghalaya State Pollution Control Board to monitor the Ambient Air Quality in the College Campus. They reported that the ambient air quality in the campus of Lady Keane College is high even though the college is located in the heart of the City. This can be attributed to the amount of greenery that exists in the college campus which acts as a protective shield from the incoming particulate matter and as an absorber of toxic gases. The Indoor air quality monitoring and assessment was planned to be carried out during the year 2020, but, due to the Covid-19 pandemic, this work could not be started. The college should initiate this monitoring as soon as possible and the parameters to be monitored should include NRSPM, RSPM, SO2, NOx and Radon gas.

Hazardous materials and their management:
At present the college does not have any specific method on how to manage the hazardous materials that are produce due the different activities of the college. The materials are simply collected and disposed with the help of the Municipality Board.

E- Waste:
An e- wastes information gathering form was made and distributed to the heads of the different department and sections in the college and then compiled to know about the total E- waste generated in the Campus. For their proper and scientific disposal two recognized dealers were contacted (i.e., Ms Mebariskhem Shangpliang, State Coordinator, Meghalaya and the Mr Sumeet Agarwal, Resource person, RLG). The list of the e-wastes is as follow:

SL. No	Types of e-waste	Number of Waste
1	Mainframe, mini computer	1
2	Personal computer (CPU with input and output device)	5(CPU), 1(Keyboard), 4(UPS)
3	Printers including Cartilages	2 (Printer), 8 (Cartridges)
4	Refrigerator	1

Since the year 2020, the college has started filing e-wastes return with the Meghalaya State Pollution Control Board, Shillong.

Conservation and restoration activities:
The college is keeping track of all the tree species that are present in the campus in order to conserve them. There are in total 59 tree species and all together there are 130 mature trees in the campus (Table 1). The college aims at increasing the number of tree by organizing yearly tree plantation drive. In the year 2019, the college through its extension services unit has planted about 100 tree saplings in the campus and many of them are growing satisfactorily. The gardener of the college is entrusted with the task to protect and monitor the tree saplings so that they reach maturity. Lady Keane College is a lively college and is always buzzing with activities. The college is trying hard to make sure that the different developmental activities do not affect or disturb the natural environment.


Planting new tree saplings


Fruit Garden


College Campus


BotanicalGarden

Fig: 11 Picture of the College greenery management

Campus culture and environmental consciousness:
To achieve the target of being an Eco-friendly college, the college is trying to get the participation of everyone involve. The extension services of the college like the NSS, Rangers, Red Cross and the NCC are encouraged to conduct programmes to inculcate an environmental conscious mentality in students and staffs of the college. Cleaning drives, Tree plantation, Poster competitions, Seminar presentation, Essay writing competitions are just a few of the activities organized to raise awareness on the need for everyone to play their part to protect the environment. The college has declared itself 'A Plastic free College' from July, 25th, 2018. In order to promote this, alternatives to plastic are being thought out in order to help everyone say No to Plastic. The college through the different Departments and the IQAC is involve in creating the necessary awareness by organising seminars and conferences and the last being a seminar on "***Environment Consciousness- To know globally and to act locally".***

Institutional research towards environmental monitoring, assessment and protection:
To further understand the impact of the environment on the college and vice versa, multidisciplinary research on environmental monitoring, assessment and protection is encouraged for department in the college to collaborate and work upon. There are many projects that the college has sponsored which relates to the understanding and protection of the environment. This study is one such project sponsored by the College.

Creating General Awareness:
The college desires that the data and findings generated from the different research works undertaken by the college on environmental monitoring, assessment and protection be made available to the general public for action and reaction. The aim is that not only Lady Keane College becomes green and eco-friendly in its activities but all colleges and every individual must be sensitized to the need of protecting their immediate environment by doing business with an environmental conscious mind.

Digitalization of the College:
Based on the findings of the Green Audit Project and on the recommendation of the Department of Chemistry, the College has installed a Digital Display Board for information and notices to the students in order to minimize the use of paper.

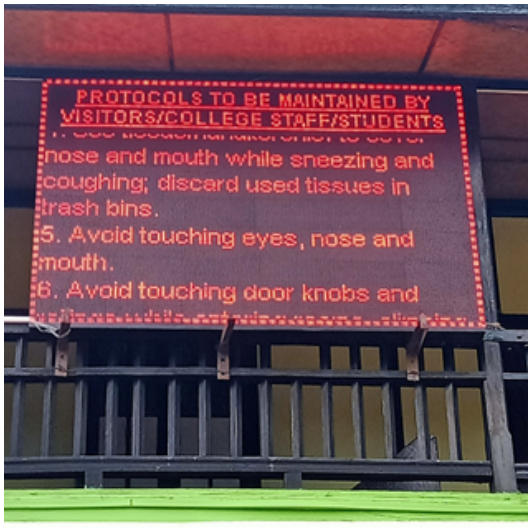


Fig: 12 Digital Display Board for information and notices to the students

Constitution of a Swachhta Team

On the directive of the Chairman, MGNCRE, Department of Higher Education, MHRD, Government of India, the college recognized that this will further add up to their endeavour towards its green goals, therefore it has constituted a Swachhta Team to implement the Swachhta Action Plan in the College Campus. The team will be implementing measures in connection with Water Management, Greenery, Energy Management, Wastes Management and Sanitation and Hygiene. For this initiate, the college was awarded a certificate by Government of India (Fig:13).


Certificate

This is to certify that Lady Keane College, Shillong, Meghalaya is now a Recognized Swachhta Action Plan Institution. The Institution has successfully formed the Swachhta Action Plan Committee and constituted the working groups Post COVID-19 for Sanitation & Hygiene, Waste Management, Water Management, Energy Management and Greenery along with the observation of two environment related days to inculcate in faculty, students and community, the practices of Swachhta and Reduction, Reuse and Recycling of Resources.

Dr. W G Prasanna Kumar
Chairman

Mahatma Gandhi National Council of Rural Education
Department of Higher Education, Ministry of Human Resource Development
Government of India

No.Cert.118/SAP/Meghalaya/Shillong

Fig: 13 Certificate received from MGNCRE, DHE, MHRD, GoI certifying the Lady Keane College, Shillong is a Swachhta Action Plan College

CONCLUSION:

The preliminary observations made on the efforts of Lady Keane College, Shillong to become an eco-friendly college is very much encouraging. The steps that the college has taken to achieve its objective are commendable. The positive attitude toward protection of the environment by becoming a green consumer and a green producer is the need of the hour.

However, the college has a long way to go before it can be labeled as a 100% Eco-friendly College. Serious brainstorming has to be carried out in order to solve the negative impacts that the college has on the environment. But, with the attitude and dedication the college is having, we believe this objective will be achieved sooner than later.

Recommendations:

After a detail Campus Green Auditing of the College, the Department of Chemistry would like to make the following recommendations:

1. That the College should have a Green Policy and constitute a strong body to implement it.
2. That the College identify one specific day in a month and declare it as a ***No Vehicle Day*** for all its staffs and students. This will encourage the use of public transportation and reduce pollution.
3. That the College installs Water Harvesting Unit in the general campus area of the college as is being done in the hostel area.
4. That the College set up a Centralised Water Distillation Unit.
5. That the College explore other alternatives to supplement the use of ground water in order to conserve it.
6. That the college explore other sources of power back up which are eco-friendly since diesel powered generator without a proper pollution controlling device are a pollution problem.
7. That the College perform regular Indoor and Outdoor Air monitoring.
8. That the College, carry out sensitization awareness campaigns and workshops so that all the stake holders are appraise of the direction the college is moving.

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