ST. DOMINIC'S COLLEGE, KANJIRAPALLY

AFFILIATED TO MAHATMA GANDHI UNIVERSITY KOTTAYAM

RE-ACCREDITED WITH A GRADE BY NAAC

ABSORB & RADIATE

Green and Energy Audit Report

2022 – 23

GREEN AUDIT REPORT

2022-23

St. Dominic's College Kanjirapally

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Executive Summary

Green auditing

Green auditing is a process that evaluates the environmental impact of an organization's operations, policies, and procedures. It involves a systematic review of an organization's environmental practices to identify areas for improvement and develop strategies to reduce environmental impact. The goal of green auditing is to help organizations become more environmentally sustainable by identifying areas of improvement and implementing solutions that reduce waste, conserve resources, and minimize negative environmental impact. Green auditing can also help organizations save money by identifying ways to improve energy efficiency, reduce waste disposal costs, and increase productivity.

In view of considerable resource usage and environmental waste discharge, numerous educational institutions all over the world have embraced the Green campus concept to make them sustainable. Now a days waste minimization plans are mandatory for the educational institutions to maintain the cleanliness of the campus. The conduct of an institution's green audit is crucial to learning about the environmental performance of educational institutions and to analysing potential options for turning the educational campus into Green campus. The green auditing of our institution enables to assess the life style, action and its impact on the environment. This is the second attempt to conduct green auditing of this college campus. This audit was mainly focused on greening indicators like consumption of energy in terms of electricity and fossil fuel, quality of soil and water, vegetation, waste management practices and carbon foot print of the campus etc. Initially a questionnaire survey was conducted to know about the existing resources of the campus and resource consumption pattern of the students and staffs in the college. In order to assess the quality of water and soil, water and soil samples were collected from different locations of the college campus and analysed for its parameters. Collected data was grouped, tabulated and analyzed. Finally a report pertaining environmental management plan with strength, weakness and suggestion on the environmental issue of campus are documented. And finally it was submitted to the management for the implementation

Introduction

About the college

St Dominic's College was started in 1965 under the Catholic management of St Dominic's Forane Church, Kanjirappally, to cater to the higher educational needs of the parish in particular, and of the eastern parts of the Archdiocese of Changanacherry in general. This was the fulfillment of a long-felt need of this region which was one of the educationally backward areas in Kerala. When the new Diocese of Kanjirappally was formed in 1977, St Dominic's College assumed the unique distinction of being the only institution offering higher education in the whole diocese.

The college also includes in its purview, the academic aspirations of all sections of the populace of the area and is committed to imparting education to all who seek higher learning at these doors, irrespective of caste, creed and community. This centre of learning keeps in its interests, the intellectual, cultural and moral advancement of these educationally and economically backward regions including the eastern parts of Kottayam District and the hill tracts of Pathanamthitta and Idukki districts. True to the adage "Fear of God is the beginning of wisdom", the college tries to instill in the hearts of its students trust in God and faith in ethical and spiritual values. It aims at upholding the highest Christian ideals along with academic excellence.

The College aims at making its students live its motto-'Absorb and Radiate'- absorb the light of knowledge and values and transmit what they imbibe, thereby expanding the frontiers of truth and wisdom.

OUR MISSION

We strive to ensure that our students are intellectually competent, morally upright and sensitive to the needs of fellow human beings. As a college in a rural area, catering to economically and socially disadvantaged students, it is our prime duty to equip our students for a better future by shaping their personality, strengthening their character, instilling in them a sense of responsibility and developing their potentials to its fullest.

OUR VISION

A Centre of learning that moulds refined individuals, quality leaders and a society of committed human beings.

Courses offered by the College

PG Courses - 6

Aided	Mathematics, Chemistry, Botany, Economics, Commerce
Un aided	English

UG Courses – 11

Aided	Mathematics, Physics, Chemistry, Botany, English, Economics, History, Commerce, BFM
Unaided	BCom Model 2&3

BVoc Programmes - 2

Agriculture technology	Agro-food processing

The student and faculty strength of the college is listed below:

Number of students	Boys	Girls
	539	837
Number of teaching faculties	Gents	Ladies
	31	27
Number of non-teaching faculties	Gents	Ladies
	14	6
Total	Gents	Ladies

	584	870

Physical Structure

The college is located in about 12.5 acres of land. The built-up area of the college is 4.5 acres.

Departments	16
Auditorium	1
Conference halls	2
Laboratories	8
Library	Main library 1, Department libraries 10
Canteen	1
Reprographic centre	1
Hostel	1

Objectives of green auditing

The objectives of a green audit can vary depending on the organization and its specific environmental goals, but generally, the main objectives of a green audit include:

Identifying environmental risks and opportunities: A green audit helps identify environmental risks and opportunities associated with an organization's operations, products, and services. It enables the organization to understand the environmental impact of its activities and to identify areas for improvement.

Measuring environmental performance: A green audit helps measure an organization's environmental performance by collecting data on resource consumption, emissions, and waste. This information can be used to track progress over time and to identify areas for improvement.

Developing and implementing environmental strategies: A green audit provides a basis for developing and implementing environmental strategies that help reduce the organization's environmental impact. It helps identify areas where the organization can make changes to become more environmentally sustainable.

Compliance with environmental regulations: A green audit helps ensure that the organization is in compliance with environmental regulations and standards. This can help avoid costly fines and legal action, and it can also demonstrate the organization's commitment to environmental responsibility.

Building stakeholder trust: A green audit can help build stakeholder trust by demonstrating the organization's commitment to environmental responsibility. This can improve the organization's reputation, increase customer loyalty, and attract socially responsible investors.

Saving costs: A green audit can help identify ways to reduce waste, conserve resources, and increase energy efficiency. By implementing these changes, organizations can save costs associated with resource consumption, waste disposal, and energy use.

Methodology adopted

Gathering data: The first step in green auditing is to collect data about an organization's environmental practices. It was done through onsite visit for sample collection, circulation of questionnaire, discussion with stake holders. This may include information about energy use, water consumption, waste disposal, and greenhouse gas emissions. The Focus Group discussions were held with the NSS, Forestry club, Bhoomithrasena Club members, staff members and the management focusing various aspects of Green Audit. The discussion was focused on identifying the attitudes and awareness towards environmental issues at the institutional and local level.

Analysis: Once the data has been collected, it is analyzed to identify areas where the organization can improve its environmental performance. This may involve comparing the organization's environmental practices to industry standards or best practices.

Recommendations: Based on the analysis, recommendations are developed for improving the organization's environmental performance. These recommendations may include changes to policies and procedures, implementation of new technologies or practices, or investments in renewable energy.

Implementation: After recommendations have been made, the organization implements the changes to improve its environmental performance. This may involve training staff, investing in new equipment or technology, or changing policies and procedures.

Monitoring and Reporting: Once changes have been implemented, the organization monitors its environmental performance to ensure that the changes are effective. This may involve regular reporting to stakeholders or certification by an external auditor

Target areas of Green Auditing

Auditing for Water Management

Water is a precious and finite resource that needs to be managed wisely and efficiently. However, many water systems face challenges such as aging infrastructure, increasing demand, climate change, water quality issues and regulatory compliance. To address these challenges, water systems need to conduct regular water audits, which are systematic assessments of how water is used and lost in the system.

Identify and quantify the sources and volumes of water loss, such as leaks, metering errors and data handling errors. Evaluate the performance and reliability of the water system, using standard indicators such as non-revenue water, infrastructure leakage index and real loss per service connection. Prioritize and implement cost-effective measures to reduce water loss and improve efficiency, such as pressure management, leak detection and repair, meter replacement and calibration, customer education and billing accuracy. Monitor and evaluate the impacts and benefits of water loss control measures, such as water savings, revenue recovery, energy savings, greenhouse gas emission reduction and public health protection.

Auditing for Energy Management

Energy is essential for our daily lives, but it also comes at a cost. Energy consumption affects our environment, our economy and our health. That's why it's important to use energy wisely and efficiently. One way to do that is to conduct an energy audit, which is a process of evaluating how much energy we use and how we can save it.

An energy audit can help us identify and fix the problems that cause energy loss, such as leaks, drafts, faulty appliances and poor insulation. It can also help us choose the best options to improve our energy efficiency, such as sealing air leaks, adding insulation, replacing windows, upgrading appliances and installing renewable energy systems. By doing an energy audit, we can reduce our energy bills, protect our environment, enhance our comfort and safety and increase our property value. An energy audit is a smart investment that can pay off in many ways.

Auditing for Waste Management

Human activities create waste, and it can pose risks to the environment and to public health. Solid waste can be divided into three categories: bio-degradable, non-biodegradable and hazardous waste. Bio-degradable wastes include food wastes, canteen waste, wastes from toilets etc. Non-biodegradable wastes include what is usually thrown away in homes and colleges such as plastic, tins and glass bottles etc. Hazardous waste is waste that is likely to be a threat to health or the environment like cleaning chemicals, acids and hydrocarbons.

Unscientific management of these wastes such as dumping in pits or burning them may cause harmful discharge of contaminants into soil and water supplies, and produce greenhouse gases contributing to global climate change respectively. Special attention should be given to the handling and management of hazardous waste generated in the college. Bio-degradable waste can be effectively utilized for energy generation purposes through anaerobic digestion or can be converted to fertilizer by composting technology. Non-biodegradable waste can be utilized through recycling and reuse. Thus the minimization of solid waste is essential to a sustainable college. The auditor diagnoses the prevailing waste disposal policies and suggests the best way to combat the problems.

Auditing for Green Campus Management

Trees play an important ecological role within the urban environment, as well as support improved public health and provide aesthetic benefits to cities. In one year, a single mature tree will absorb up to 25 kg of carbon dioxide from the atmosphere, and release it as oxygen.

Using plants as sound barriers is an effective and environmentally friendly way to reduce noise pollution. Plants can absorb, deflect, and scatter sound waves, helping to create a more peaceful and quieter environment. Plants play a significant role in reducing soil erosion through their root system, soil structure improvement, ground cover, sediment trapping etc

Survey forms

Water audit

SL NO	PARAMETERS	Response	Remarks
1	Source of water		
2	No of Wells		
3	No of motors used		
4	Horse power – Motor		
5	Number of water tanks		
6	Capacity of tank		
7	Quantity of water pumped every day		
8	Any water wastage/why?		
9	Water usage for gardening		
10	Waste water sources		
11	Use of waste water		
12	Faith of waste water from labs		
13	Any treatment for lab water		
14	Rain water harvest available?		
15	Any leaky taps		
16	Amount of water lost per day		
17	Any water management plan used?		
18	Any water saving techniques followed?		
19	Are there any signs reminding peoples to turn off the water?		

Energy audit

Room No. / name	Electrical device/ items	Number	Power	usage time (hr/day)

Item: Bulbs (CFL, incandescent, LED); A/C, fan, computer, instruments

Waste management

Approximate quantity of waste generated per day (in kg)

Office				
Approx	Biodegradable	Non - Biodegradable	Hazardous	Others
<1Kg				
2-10Kg				
>10Kg				

Laboratories				
Approx	Biodegradable	Non - Biodegradable	Hazardous	Others
<1Kg				
2-10Kg				
>10Kg				

Canteen/kitchen				
Approx	Biodegradable	Non - Biodegradable	Hazardous	Others
<1Kg				
2-10Kg				
>10Kg				

Total strength of students, teachers, and Non teaching staffs

No of Students		
No of Teachers		
No of Non teaching staffs		
Gents		
Ladies		
Total		

How the waste generated in the college is managed?

A)Composting/ Vermicomposting	Yes/ No	Remark
B)Recycling		
C)Reusing		
D)Other ways		

Waste generated in the college?

E-waste		
Hazardous waste		
Solid waste		
Dry leaves		
Canteen waste		
Liquid waste		
Glass		
Unused equipment		
Napkins		
Others (specify)		

Do you use recycled paper in college ?	
Any waste management methods used ?	

AUDIT STAGE

Green auditing in St Dominic's College, Kamjirapally began with the assessment of the status of the green cover of the Institution followed by waste management practices and energy conservation strategies etc. The team monitored different facilities at the college, determined different types of appliances and utilities (lights, taps, toilets, fridges, etc.) as well as measuring the usage per item (Watts indicated on the appliance or measuring water from a tap) and identifying the relevant consumption patterns (such as how often an appliance is used) and their impacts. The staff and learners were interviewed to get details of usage, frequency or general characteristics of certain appliances.

Data collection was done in the sectors such as Energy, Waste, Greening and Water use. College records and documents were verified several times to clarify the data received through survey and discussions. The environment samples including water, soil were from various location of the campus were collected and analyzed in the research lab of the institution.

GREEN AUDIT REPORT

Water Quality assessment

Water samples from four different locations were collected and analyzed for its quality parameters. The samples were collected from office cooler, Canteen, Well, Ladies amenity center. The major parameters analyzed include odor, pH, conductivity, acidity, alkalinity, TDS, Total hardness, Calcium, Magnesium, chloride, iron nitrate, turbidity. The results are presented in the Table 1

The results are comparable with the values of drinking water standards.

Table 1. Results of water quality

Parameters	Sample 1	Sample 2	Sample 3	Sample 4	Standard value
Odour	Agreeable	Agreeable	Agreeable	Agreeable	6-8
pH	6.58	6.72	6.9	6.67	91
Conductivity	86	84	123	91	
Acidity	60ppm	85	80	100	200
Alkalinity	110ppm	118	120	125	200
TDS	33ppm	50	73	54	500
Total hardness	160ppm	180	200	240	200
Calcium	110ppm	120	120	140	75
Magnesium	50ppm	60	80	100	30
Chloride	120ppm	120	150	180	250
Iron	0.1ppm	0.1	0.2	0.2	0.3
Nitrate	BDS	BDL	BDL	BDL	10
Turbidity	0.21ntu	0.14	0.11	0.16	1ntu

Water Management

The source of water used in the College is two wells present in the campus. One well was recharging with rainwater from the roof. A total of 25000L of water is pumped out from the well every day. An average of 7,50,000 L of water is used by the College per month.

Table 2.

SL NO	PARAMETERS	Response	Remarks
1	Source of water	Wells	
2	No of Wells	2	
3	No of motors used	2	

4	Horse power – Motor	15HP-1 2HP-1	
5	Number of water tanks	7	
6	Capacity of tank	2000 L-2 10000L -2 1000L-3	
7	Quantity of water pumped every day	25000L	
8	Any water wastage/why?	Nil	
9	Water usage for gardening	500L/day	
10	Waste water sources	Lab, canteen	
11	Use of waste water	Nil	
12	Fate of wastewater from labs	After neutralization waste water is kept in a large covered pit	
13	Any wastewater treatment for lab water	No	
14	Rain water harvest available?	Yes	
15	Any leaky taps	Nil	
16	Amount of water lost per day	Nil	
17	Any water management plan used?	Water management audit conducted	
18	Any water saving techniques followed?	Nil	
19	Are there any signs reminding peoples to turn off the water?	Yes	

Energy Audit Report

Table 3 shows the energy consumption pattern of the college for a month. The college has consumed an average of 8079.9W/hr electricity in a month and the one year electricity bill amount was 9,00,000/-.

Table 3

Sl No	Electrical appliances/ instruments	Number	Power (W)/unit	Total power (W)	kW	Operation /day	kW/hr	No of days in month	Total consumption per month
1	Old Model Tube	**307**	50	15350	15.35	3	46.05	20	921
2	Old Celling Fan	354	75	26550	26.55	4	106.2	20	2124
3	Wall Fan	17	50	850	0.85	2	1.7	20	34
4	LED Bulb	104	20	2080	2.08	3	6.24	20	124.8
5	LED Tube – New	142	20	2840	2.84	3	8.52	20	170.4
6	Incandescent Bulb	20	60	1200	1.2	3	3.6	20	72
7	Exhaust FAN	15	42	630	0.63	2	1.26	20	25.2
8	AC	12	1000	12000	12	1	12	10	120
9	Computer	110	200	22000	22	4	88	20	1760
10	Printers	28	70	1960	1.96	0.5	0.98	20	19.6
11	Photostat	5	450	2250	2.25	0.5	1.125	20	22.5
12	Scanner	5	40	200	0.2	0.5	0.1	20	2
13	UPS	16	900	14400	14.4	4	57.6	20	1152
14	Induction	1	2000	2000	2	0.5	1	5	5
15	Refrigerator	4	125	500	0.5	5	2.5	20	50
16	Mixer Grinder	2	900	1800	1.8	0.5	0.9	10	9
17	Oven	4	2000	8000	8	1	8	10	80
18	Centrifuge	4	40	160	0.16	1	0.16	20	3.2
19	Autoclave	1	1700	1700	1.7	1	1.7	20	34
20	Ultrasound Sonicater	1	700	700	0.7	1	0.7	20	14
21	Laminar Flow	1	600	600	0.6	1	0.6	10	6
22	Incubator	2	1000	2000	2	3	6	5	30
23	Distillation Unit	1	1000	1000	1	3	3	10	30
24	Lap Top	53	50	2650	2.65	3	7.95	20	159
25	Projector	21	350	7350	7.35	2	14.7	20	294
26	Speeker	110	6	660	0.66	1	0.66	20	13.2
27	Sanitary Inclinator	1	2000	2000	2	1	2	20	40
28	Water Pump	2x1	750	1500	1.5	2	3	30	90
29	Water Pump	15	750	11250	11.25	2	22.5	30	675

Waste management

Waste management is important for an ecofriendly campus. In a college different types of wastes 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: 1500

Total number of building (Class rooms, canteen, office, auditorium, library etc): 6

Table 4. Different types of waste generated in the college and their disposal

Types of waste	Particulars	Disposal method
E-Waste	Computers, electrical and electronic parts	Direct selling
Plastic waste	Pen, Refill, Plastic water bottles and other plastic containers, wrappers etc	Direct selling, up cycling
Solid wastes	Damaged furniture, paper waste, food wastes	Reuse after maintenance , food waste to Pig farmers
Chemical wastes	Laboratory waste	Neutralise with water
Waste water	Washing, urinals, bathrooms	Soak pits
Glass waste	Broken glass wares from the labs	Direct selling
Sanitary Napkin	-	Napkin Incinerators

Waste management Practices adopted by the college

The organic waste generated in the canteen is used as feed for biogas plant and the biogas is used as fuel in college canteen. Vegetable waste generated in the canteen and hostel mess were collected by local pig farmers, and other leaf litters were used to fed in the vermi-compost pit and the resulting vermin-cast is used as manure in the garden. The chemicals from the laboratories are disposed in a sealed tank along with water, so that the chemicals undergo neutralization with the water.

Plant Diversity in the college campus

Sl. No	**Scientific Name**	**Common Name**	**Family**
1.	*Acacia auriculiformi*	Ear leaf acacia	Fabaceae
2.	*Achras sapota*	Chiku	Sapotaceae
3.	*Adenanthera pavonina*	Red bead tree	Fabaceae
4.	*Albizia lebbeck*	Vaaka	Fabaceae
5.	*Annona muricata*	Soursop	Annonaceae
6.	*Annona squamosa*	Sugar-apples	Annonaceae
7.	*Artocarpus heterophyllus*	Jackfruit	Moraceae
8.	*Artocarpus hirsutus*	Wild jack	Moraceae
9.	*Azadirachta indica*	Neemtree	Meliaceae
10.	*Bambusa vulgaris*	Common bamboo	Poaceae
11.	*Carica papaya*	Papaya	Caricaceae
12.	*Cassia fistula*	Kanikkonna	Fabaceae
13.	*Casuarina equisetifolia*	Whistling pine tree	Casuarinaceae
14.	*Cocos nucifera*	Cocos Tree	Arecaceae
15.	*Elaeocarpus serratus*	Kaara	Elaeocarpaceae
16.	*Emblica officinalis*	Gooseberry	Euphorbeaceae
17.	*Ficus auriculata*	Roxburgh fig	Moraceae
18.	*Ficus hispida*	Opposite leaf Fig	Moraceae
19.	*Ficus religiosa Linn*	Peepul tree	Moraceae
20.	*Ficus retusa*	Ithi	Moraceae
21.	*Hevea brasiliensis*	Rubber tree	Euphorbiaceae
22.	*Lagerstroemia floribunda*	Thai crape myrtle	Lythraceae
23.	*Lawsonia inermis*	Henna tree	Lythraceae
24.	*Macaranga peltata*	Vattakanni	Euphorbiaceae
25.	*Mangifera indica*	Mango	Anacardiaceae
26.	*Melaleuca citrina*	Red bottlebrush	Myrtaceae
27.	*Morinda tinctoria*	Indian mulberry	Rubiaceae
28.	*Murraya koenigi*	Curry tree	Rutaceae
29.	*Nephelium lappaceum*	Rambutan	Sapindaceae
30.	*Samanea saman*	Monkey pod tree/ Rain tree	Fabaceae
31.	*Santalum album*	Indian sandalwood	Santalaceae
32.	*Sesbania grandiflora*	Vegetable hummingbird	Fabaceae
33.	*Simarouba glauca*	Paradise tree	Simaroubaceae
34.	*Swietenia mahagoni*	American mahogany	Meliaceae
35.	*Syzygium cumini*	Black plum/ Jamun	Myrtaceae
36.	*Tamarindus indica*	Tamarindus	Fabaceae
37.	*Tectona grandis*	Teak	Verbenaceae
38.	*Terminalia aejuna*	Arjuna Maram	Combretaceae
39.	*Vitex negundo*	Chaste tree	Verbenaceae

Shrubs

Sl. No	Scientific Name	Common Name	Family
1.	*Abelmoschus esculentus*	Okra/Ladies Finger	Malvaceae
2.	*Allamanda blanchetii*	Purple allamanda	Apocynaceae
3.	*Allamanda cathartica*	Golden trumpet	Apocynaceae
4.	*Bambusa ventricosa*	Buddha's-belly bamboo	Poaceae
5.	*Bougainvillea spectabilis*	Bougainvillea	Nyctaginaceae
6.	*Caesalpinia pulcherrima*	Peacock flower	Fabaceae
7.	*Chromolaena odorata*	Christmas bush	Asteraceae
8.	*Cissus quadrangularis*	Veldt grape	Vitaceae
9.	*Codiaeum variegatum*	Variegated croton	Euphorbiaceae
10	*Combretum indicum*	Rangoon creeper	Combretaceae
11	*Cyrtostachys renda*	Red Palm	Arecaceae
12	*Datura metel*	Devil's Trumpet	Solanaceae
13	*Desmodium gangeticum*	Salparni	Fabaceae
14	*Dieffenbachia seguine*	Dumbcane	Araceae
15	*Dracaena fragrans*	Dracaena plant	Asparagaceae
16	*Duranta erecta*	Golden dewdrop	Verbenaceae
17	*Gardenia jasminoides*	Gardenia	Rubiaceae
18	*Hamelia patens*	Firebush	Rubiaceae
19	*Hibiscus rosa-sinensis*	China rose	Malvaceae
20	*Hydrangea macrophylla*	Hydrangea	Hydrangeaceae
21	*Ixora coccinea*	Jungle geranium	Rubiaceae
22	*Jasminum auriculatum*	Mulla	Oleaceae
23	*Lantana camara*	Common lantana	Verbenaceae
24	*Melastoma malabathricum*	Indian rhododendron	Melastomataceae
25	*Mussaenda philippica*	Mussaenda	Rubiaceae
26	*Nerium oleander*	Nerium	Apocynaceae
27	*Pachystachys coccinea*	Cardinals guard	Acanthaceae
28	*Pandanus veitchii*	Pandanus	Pandanaceae
29	*Plumeria alba*	Plumeria	Apocynaceae
30	*Plumeria obtusa*	Vella champaka	Apocynaceae
31	*Psidium guajava*	Common guava	Myrtaceae
32	*Quassia amara*	Amargo	Simaroubaceae
33	*Rose* sp.	Rosa	Rosaceae
34	*Sauropus androgynus*	Star gooseberry	Phyllanthaceae
35	*Sida acuta*	Wireweed	Malvaceae
36	*Solanum melongena*	Egg Plant	Solanaceae
37	*solanum nigrum*	Black nightshade	Solanaceae
38	*Solanum torvum*	Turkey berry	Solanaceae
39	*Tabernaemontana divaricata*	Pinwheel flower	Apocynaceae
40	*Tecoma stans*	Yellow elder	Bignoniaceae
41	*Thunbergia erecta*	Bush clockvine	Acanthaceae
42	*Triumfetta rhomboidea*	Diamond burbark	Malvaceae

Bryophytes

Sl. No	Scientific Name	Family
Liverworts		
1	*Riccia sp*	Ricciaceae
2	*Cyathodium cavernarum*	Cyathodiaceae
3	*Lunularia cruciata*	Lunulariaceae
4	*Pallavicinia sp*	Pallavinicinaceae
5	*Anthoceros sp*	Anthocerotaceae
Mosses		
5	*Hyophila involuta*	Pottiaceae
6	*Bryum coronatum*	Bryaceae
7	*Taxithelium kerianum*	Sematophyllaceae
8	*Philonotis tomentella*	Bartramiaceae

Pteridophytes

Sl. No	Scientific Name	Common Name	Family
1	*Adiantum capillus-veneris*	Maidenhair fern	Pteridaceae
2	*Azolla* sp.	Azolla	Azollaceae
3	*Drynaria* sp.	Oak Leaf Fern	Polypodiaceae
4	*Nephrolepis biserrata*	Swordfern	Oleandraceae
5	*Osmunda* sp	Osmunda	Osmundaceae
6	*Plagiogyria* sp.	Plagiogyria	Plagiogyriaceae
7	*Salvinia* sp.	Salvinia	Salviniaceae
8	*Selaginella* sp	*Selaginella*	Selaginellaceae
9	*Asplenium nidus*	Bird’s nest fern	Aspleniaceae
10	*Schizaea dichotoma*	Fan fern	Schizaeaceae

Gymnosperms

Sl. No	Scientific Name	Common Name	Family
1	*Cupressus sempervirens*	Italian cypress	Cupressaceae
2	*Cycas circinalis*	Queen sago	Cycadaceae
3	*Platycladus orientalis*	Thuja	Cupressaceae
4	*Zamia pygmaea*	Zamia plant	Zamiaceae

Invasive species

No	Species	Common Name	Native	Status
1.	*Centrosema pubescens*	Butterfly pea	Mexico, Central America	Exotic
2	*Ipomoea cairica*	Cairo Morning glory	Tropical Africa	Exotic
3	*Ipomoea quamoclit*	Cardinal climber	Mexico, Tropical Americas	Exotic

4	*Mikania micrantha*	Climbing Hempweed	Mexico, Central & South America	Exotic
5	*Lantana camera*	Lantana	Native of Tropical America	Naturalised in Paleotropics
7	*Clidemia hirta*	Koster's curse	Native of South America	Naturalised in Paleotropics

Campus farming

The college has started a novel venture of

- Cultivation of fruit trees the campus
- Rearing of honey bees
- Organic vegetable farm in polyhouse
- Medicinal plant garden
- Pteridophyte garden
- Aquatic garden were also properly maintained in the campus.

Routine Green Practices

Every year college celebrates World Environment Day, World Water Day and Ozone Day in the campus. The main focus of these programems was to provide awareness to the students about the importance of the environment, its conservation and sustainable use of environmental resources. The programmes are conducted through seminars, poster presentation, quiz competition debates etc.

SUGGESTIONS AND RECOMMENDATIONS

Water Management

The water sources are safe in terms of contamination. Most of the students are taking back the food waste as per the zero waste management strategy of the college. It helped in reducing the consumption of water for washing.

Rainwater for laboratory purposes – Construction of a 1000L rainwater harvesting tank can satisfy the need of laboratory, especially in distillation units where water lost as coolant. The rain water from harvesting tank can be used as source water as well as coolant for the distillation unit. The rain water can also be used as source for drinking water. The coolant water can be recycled through a separate plumbing system.

The capacity of distillation unit in the college is 1 L / hour. The amount of water used as coolant for 1L of distilled water is 60L. Annually, the unit require approximately 1500L of water as coolant and

this much water can be saved with the construction of the harvesting tank.

The BMC club can arrange awareness programmes for water conservation. There should be a proper monitoring of water consumption pattern in the campus. BMC can also conduct water quality monitoring during specific intervals.

The canteen waste can also be subjected to aerobic composting by setting-up of few composting yards in the campus. This will provide a chance for the students to learn by seeing and operating such compost yards by them. Also a good practice of managing their own waste (from lunch box) instead of carrying them back home they can be trained in operating the compost yard ,by using their lunch time waste to produce good organic manure. The food waste was regularly taken by pig farmers also practiced in the canteen.

Energy management

The energy audit recommend to avoid the use of more energy consuming electrical appliances and to replace with more environment friendly and energy efficient appliances such as five stars rated Air conditioners, BLDC fans in the college. The potential of renewable energy sources have to be explored. As the college has a very large roof area for installing solar panels so that it can be effectively used for generating power. The college has installed 5kva solar panels on the roof top of the new building. RUSA also sanctioned fund for 20 kva solar panels.

It is recommended to install the following solar powered appliances in the campus;

- Solar powered water heater and cooker in the college canteen
- Solar powered street lights and LED display board Green Campus

Waste Management

- Try to avoid the use of plastic in the campus, and to encourage the use of biodegradable materials as alternatives. Try to achieve the goal of plastic free campus.

- Leaf litter from the campus can be effectively used for aerobic/ vermi composting instead of incineration so that the composted material can also be used as good manure.

- Recycle the paper waste instead of incinerate or burning.

Conclusion

In conclusion, green auditing is a valuable tool for assessing and improving the environmental performance of the college. By conducting a systematic evaluation of energy consumption, waste management, water usage, and other environmental aspects, green auditing helps identify areas of inefficiency and opportunities for sustainable practices. Through the implementation of recommended strategies and measures, the college can reduce their ecological footprint, conserve resources, and enhance their overall environmental stewardship. Some of the recommendations are very useful and practically possible but some of the recommendations such as installation of modern technologies like BLDC fans, replacement of the equipments are not possible within a short period of time. The participation of both teachers and students in the auditing process provided insight into the importance of green auditing. Green auditing promotes sustainability, cost savings, and a positive reputation, making it an essential practice for organizations committed to environmental responsibility and long-term sustainability.

CERTIFICATE FROM KERALA HARITHA MISSION

(KERALA HARITHA MISSION is the official state government body for promotion of Green Practices)

This Certificate is awarded by the agency after conducting visit and audit in the institution

ഹരിതസ്ഥാപനം

പ്രശംസാപത്രം

അറിവിനോടൊപ്പം പരിസ്ഥിതി പരിപാലനത്തിന്റെ സംസ്കാരം വിദ്യാർത്ഥികൾക്ക് പകർന്നു നൽകുവാനായി ഹരിതകേരളം മിഷന്റെ ഭാഗമായി നടത്തിയ മാതൃകാപരമായ പ്രവർത്തനങ്ങൾക്കും ഹരിത പെരുമാറ്റച്ചട്ടം പാലിക്കുന്നതിലൂടെ സമൂഹത്തിന് പകർന്നു നൽകിയ നല്ല സന്ദേശത്തിനും **കാഞ്ഞിരപ്പള്ളി സെന്റ്. ഡൊമിനിക്സ് കോളേജ്** ന് അഭിനന്ദനങ്ങൾ. ജല സുരക്ഷ, ഭക്ഷ്യ സുരക്ഷ, മാലിന്യ സംസ്കരണം എന്നിവയിൽ മാതൃകാപരമായ പ്രവർത്തനങ്ങൾ കാഴ്ചവെച്ച **കാഞ്ഞിരപ്പള്ളി സെന്റ്. ഡൊമിനിക്സ് കോളേജ്** ന് നവകേരളം കർമപദ്ധതിയുടെ അനുമോദനങ്ങൾ.

ജില്ലാ കോർഡിനേറ്റർ
നവകേരളം കർമപദ്ധതി 2
കോട്ടയം

14.06.2023

Translation of the Content

Green institution

Certificate of Appreciation*

Congratulations to St. Dominic's College Kanjirapally for the exemplary work done to inculcate the culture of environmental conservation as part of the Haritha Kerala Mission along with imparting knowledge and ecological values by following the green code of conduct. NavaKeralam Karmapadhathi, Govt. of Kerala acknowledges and appreciates the commendable efforts taken by the college for ensuring food security, water security and waste management within the campus.