

M.E.S INSTITUTE  OF MANAGEMENT

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GREEN AUDIT REPORT 2015-20

MES INSTITUTE OF MANAGEMENT

RAJAJINAGAR, BANGALORE

Prepared by



ORDER

(Abode for quality Environment and Development)

Organization for Resource Development and Environment Rejuvenation

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Acknowledgement

We are privileged to have associated with MES Institute Of Management (MESIoM) for executing a Green Audit at their campus. We are thankful for the opportunity given to assist the esteemed institution in taking their Green Agenda forward.

The Management at MESIoM were extremely cordial and supportive of this initiative. Our meetings with the Principal Ms. Sharadha Prasanna were very productive and her team of Teaching Staff and Manager which included Ms. Chitra and Ms. Anitha, collaborated and helped us with all the essential baseline data and requisite information.

We would like to place our heartfelt gratitude to the entire team of Management at MESIoM in the carrying out this effort with ease and to the fullest potential.

We wish MES Group of Institutions and MES Institute of Management in particular the very best in their future endeavours.

Acknowledgement	1
I. INTRODUCTION:.....	3
Need for Green Auditing:.....	3
Goals of Green Audit:.....	4
Benefits of Green Audit:	4
NAAC Accreditation:	5
General and Specific Objectives:.....	5
II. MES GROUP OF INSTITUTIONS:	6
The MES Institute of Management (MESIoM).....	6
Green Audit Agency:	10
Management Request and Support:.....	11
Scope of Audit 2015-2020.....	11
Methodology:.....	12
A. ECO-FRIENDLY CAMPUS INFRASTRUCTURE DESIGN.....	13
B. WATER USE AND MANAGEMENT	17
C. SOLID WASTE MANAGEMENT.....	21
D. ENERGY CONSERVATION AND MANAGEMENT	25
Green Transportation Measures.....	27
E. GREEN AREA MANAGEMENT AND BIODIVERSITY	28
Green Corridor with indoor air purifying plants	29
Medicinal Garden.....	30
Presence of common Fauna.....	31
F. GREEN AGENDA	32
Ecology Club Activities	32
Composition of Eco Club	33
WORLD ENVIRONMENT DAY (WED) Celebration.....	33
Environmental Awareness Posters	35
III. AUDIT FRAMEWORK AND DETAILED FINDINGS.....	36
Conclusion & Recommendation	39
Green Audit Recommendations.....	39

I. INTRODUCTION:

The early 1970s saw an initiation of conducting a green Audit exercise within organisation mostly in order to assess the health risks posed to the inhabitants and the impact on the environment. Green Audit is a process of systematic identification, quantification, recording, reporting and analysis of components of environmental diversity of various establishments.

Green audit primarily serves to identify opportunities to sustainable development practices, enhance environmental quality, improve health, hygiene and safety, reduce liabilities and save money and achieve values of virtue. Environmental audit is a highly valuable tool for academic institutions in a wide range of ways to improve their environmental and economic performance and reputation -- while reducing wastages and operating costs.

Once a baseline data is prepared after the auditing process, the data can serve as a starting point for further actions. It will also help the college to compare its programmes and activities with other peer institutions, identify areas for improvement and prioritise the implementation of future projects. The data will also provide a basis for calculating the economic benefits of resource conservation projects by establishing the current rates of resource use and their associated costs.

Green auditing helps institutions to apply sustainable development practices and to set examples before the community and young learners. Higher education is meant to trigger introspection and self-enquiry as a natural and necessary outgrowth amongst the learners. Thus it is imperative that the college evaluate its own footprints and contributions toward a sustainable future.

As environmental sustainability is becoming an increasingly important issue for Nations worldwide, the role of higher educational institutions is more relevant and helps create health and social consciousness and promote environmental awareness, values and ethics

Need for Green Auditing:

Green auditing is the process of identifying and determining whether institutional practices are eco-friendly and sustainable. Traditionally, we are good and efficient users of natural resources. But over the last decades the pursuit of development and modernisation, have put a tremendous stress on the utilisation of natural resources like fossil fuels for energy, water and biodiversity. This has come with its share of pollutants being emptied into the environment as well as accumulation and indiscriminate disposal of hazardous wastes on land, forests and oceans.

Today we have reached a stage where every ounce of natural resource has to be optimised and wastes reduced to the maximum. This calls for constant monitoring and improvising on resource utilisation. Hence the first step towards a continuous and sustainable environmental protection and conservation process would be an exercise to understand the present scenario vis-à-vis benchmarking future goalpost. This is exactly why we need a Green Audit.

Green audit provides an approach for all current and future resource optimisation and ultimately towards zero waste and zero carbon community.

Goals of Green Audit:

- Identification and documentation of green practices followed by the Institution.
- Study the facility for different types of waste management.
- Identify strength and weakness in green practices.
- Assess health and safety and environmental risks.
- Analyze and suggest solution for problems identified from survey.
- Increase environmental awareness throughout campus.
- Motivates staff and students towards sustainable use of available resources.

Benefits of Green Audit:

Periodic assessment of the Educational Institution for its environmental performance through a Green Audit provides several advantages.

- Point out the prevailing and forthcoming impacts of its activities on environment and this would help to prepare a road map to protect the environment.
- Recognize the cost conservation methods through waste minimization and management.
- Ensures conformity with the all the international and national environment framework and function effectively in compliance with existing and applicable laws.
- Students are the pillars of an academic institution and practicing green actions will inculcate the green habits of caring and conserving natural resources
- Many environmental activities like plantation and nurturing saplings and trees, Cleanliness drives, Bird watching camps, No vehicle day, Rain water harvesting, etc. go towards creating eco- conscious citizens for the country and the world.
- Project an eco compliant image of an institute which helps in fostering beneficial relationships across institutions and to collaborate with them effectively.

- Empower the institution to achieve robust environmental performance and contribute towards the reduction of Global warming through Carbon Footprint reduction measures.
- Promotes the cycle of vigilance for environmental guidelines and duties.

NAAC Accreditation:

The National Assessment and Accreditation Council (NAAC), is an autonomous body funded by the University Grants Commission of Government of India, has made 'Environmental Consciousness', a mandatory criterion (Criterion VII) for grading educational institutes. Under its mandate all Higher Educational Institutions are required to submit an annual Green Audit Report. It is performed by considering environmental parameters like water and wastewater accounting, energy conservation, waste management, air, noise monitoring etc. for making the institution more eco-friendly. The Institution is then Graded according to the scores assigned at the time of accreditation.

The policy of the Government of India under the leadership of our Honourable PM Shri. Narendra Modi Ji has also been in this direction, by declaring the mission of 'Swachh Bharat Abhiyan', whose voice resonates with the message of "Green Campus, Clean Campus" mission launched by the University Grants Commission for all higher educational institutes. Moreover, it is part of Corporate Social Responsibility of the Higher Educational Institutions to ensure that they contribute towards the reduction of carbon footprint.

General and Specific Objectives:

Over the last five years since 2015, MES Institution has been implementing eco-friendly measures and systems towards environmental sustainability. However no documented effort was made and hence, the purpose of the present green audit is to identify, quantify, describe and prioritize major areas of resource utilisation and create a framework for sustainable practices in compliance with the applicable regulations, policies and standards

The specific objectives are:

- To assess the energy consumption pattern of the college.
- To assess the quantity of water usage pattern within the college campus
- To identify and study the various sources of solid waste generation and its present management methods
- To prepare a checklist of flora and faunal diversity in and around the college campus.

- To suggest measures to improve greenery and enhance biodiversity within the college campus.
- To suggest sustainable energy usage and water conservation practices.

II. MES GROUP OF INSTITUTIONS:

A group of enlightened citizens of Malleshwaram felt a need to open a college in Malleshwaram particularly to provide facilities to girl students, who had to go as far as Maharani's College for their courses in higher learning. The founders Sri. G. A. Acharya, Prof. B. R. Subba Rao, Sri. M. Chinnaswamy, Sri. M. R. Narasimha Iyengar, Prof. M. P. L. Sastry and Smt. Vimla Rangachar responded to this need by starting an intermediate college in 15th Cross, Malleshwaram, and started the institution in 1956-57 with a student strength of 68. In its infant stages the MES INSTITUTIONS was housed in a small dwelling Anandashram, which recalled the ancient Guru Kula with a good rapport between the small number of students and their teachers. MES College has been steadfast in its ideal of providing affordable, value-based education and provide opportunities for the cultural development of students

The college celebrated its Silver Jubilee in 1982 and Golden Jubilee in 2006 and its diamond jubilee in 2017. In the course of its historical development MES Institutions has acquired great prominence not only in Karnataka but also in the country. At present MES institutions manages Two Schools, Four PU Colleges, Three Degree Colleges, PG & Research Centre. Anybody who enters MES Institutions will feel and experience the silken touch of care, compassion and concern, which embody the philosophy of learning pursued here. Consequently character, confidence and credibility evolve. As a premier institution in Karnataka, the Mysore Education Society caters to the educational needs of 15000 Students at various Levels. The MES Group of institutions have helped in realizing the aspirations of generation of students. Students from MES institutions have excellence in every area of education and now occupy prominent positions in society. Many stalwarts in Sports, Music, Arts, Administration, Politics have emerged out of MES Institutions and have become worthy citizens of the nation.

The MES Institute of Management (MESIoM)

It was the dream of our founders, especially late Prof. M P L Sastry, to impart value-based education in the field of Management Studies and also in the process imbibe the rich Indian Culture. The former President of MES Group of Institutions, late Sri. K P Surendranath,

initiated steps to start a Management Institution which became a reality in the form of MES Institute of Management in 2006. MESIoM aims at providing its students a holistic learning and multidimensional development by strengthening their multiple intelligences by organizing various activities like seminars, conferences, workshops, training and placements. The College has grown steadily since its inception in 2006.

MESIoM provides high calibre teaching staff and the students are given challenging, academic environment, well equipped classrooms, computer laboratory and a well-stocked library. The quality of education and the quality of life in the campus ensures the transformation and greater development of the student.

VISION

To strive towards achieving and maintaining the pinnacle of excellence in education and empowering students grounded in Indian heritage to live as exemplary human beings geared for competency at all levels

MISSION

- ❖ To impart all encompassing knowledge-syllabus prescribed by the university as well as learning about the world beyond the classroom.
- ❖ To provide a platform for the students to build and strengthen character that will help them to face all challenges with integrity.
- ❖ To foster leadership qualities and encourage entrepreneurial skills for a better contribution to the future of India as a global leader.
- ❖ To empower youth with knowledge, skills and competence within the students.

OBJECTIVES

- ❖ Integration of teaching and learning advancement of the knowledge base through research and leadership in service outreach.
- ❖ To develop tomorrow's business leaders, entrepreneurs and managers through inter disciplinary approach.
- ❖ All people are entitled to a high quality education, grounded in sensitivity to individual dignity, professional integrity, and positive nurturing environment.
- ❖ To encourage the student's to achieve all-round development.

GOAL

- ❖ To create an excellent ambience for teaching and learning.
- ❖ To self-evaluate, set goals, raise the bar and strive for continuous growth.
- ❖ Faculty Motivation through Financial and Non-financial incentives.
- ❖ Sustain a caring, supportive climate throughout College.

Departments

- Department of English
- Department of Kannada
- Department of Sanskrit
- Department of Hindi
- Department of Sports
- Department of Commerce and Management

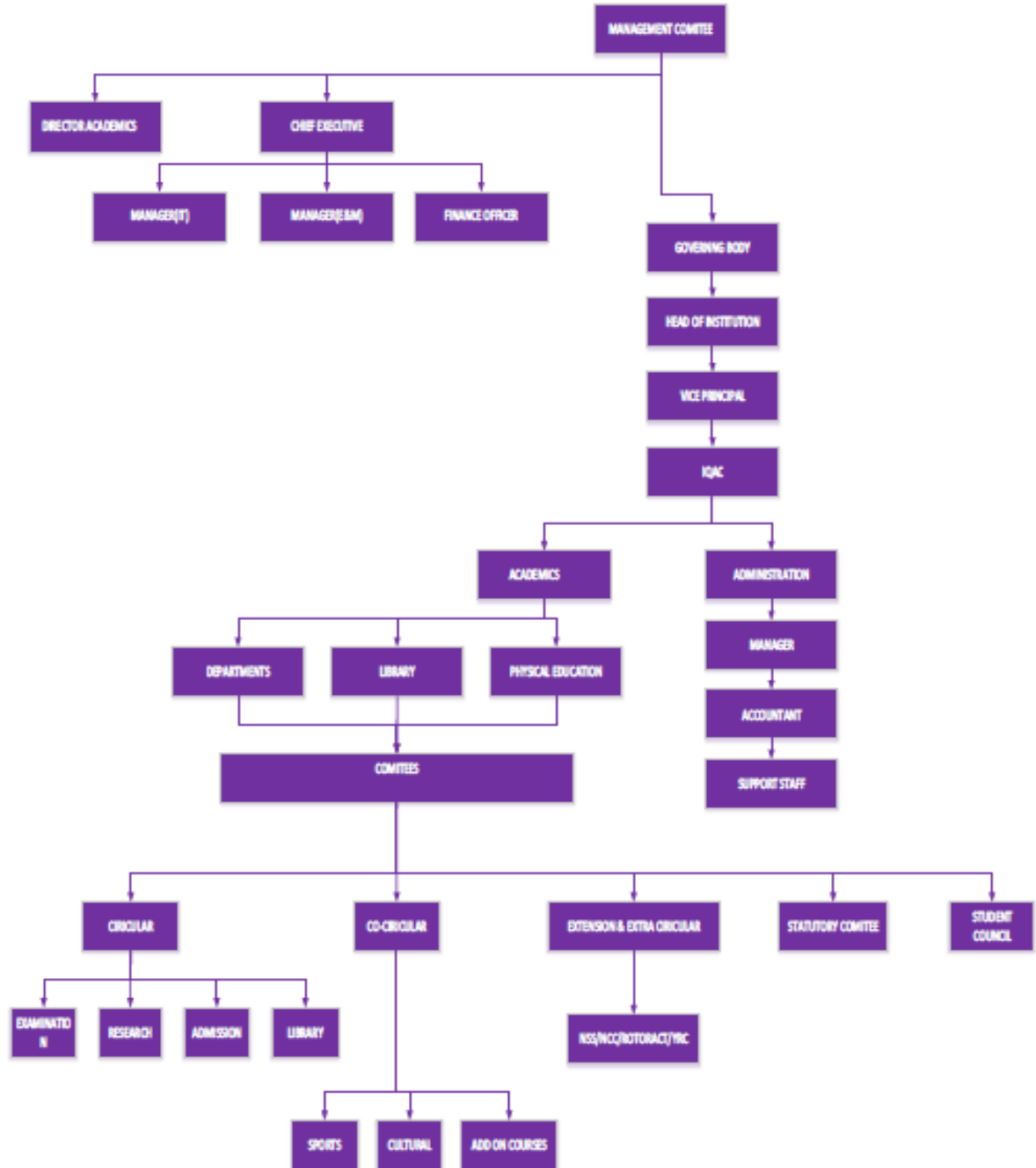
Branches of study offered: Under Graduate Courses – BBA, BBM

Snapshot of Faculty and Students Strength:

	2015-16	2016-17	2017-18	2018-19	2019-20
Staff Strength	22	26	27	28	27
Teaching	13	17	18	19	20
Non-teaching	09	09	09	09	07
Students	495	527	573	598	675
Male	238	253	296	286	332
Female	257	274	277	312	343

Organisation chart of MESIoM

MES INSTITUTE OF MANAGEMENT



Campus and the Building:

MES Institute of Management is collocated along with MES Teachers college, MES PU College in the same campus. The Institution building has a total site areas of approx.. 1903.45 SqM built up with Basement+Ground+Four floors structure accommodating three independent colleges.

MES Institute of Management is situated in third and fourth floor of the campus with a carpet area totalling to 719.19+719.76 SQM each, covered with a sheet roof terrace.

Green Audit Agency:

Organization for Resource Development and Environment Rejuvenation (ORDER) was founded in 2003 and registered under Karnataka Societies Act 1960.

Origins

ORDER came into being with an objective of meeting community development goals and effectively demonstrates sustainability in its true sense at the grass root level. ORDER Trust was also registered as Sister Concern organization to provide the benefit to the general public, to work for the welfare of disadvantaged sections of the community, providing them basic education, vocational trainings, awareness on health, sanitation and sustainable use of natural resources, for socio economic development and improved quality of life.

ORDER's motto is to empower and guide and support rural and urban community wellbeing, conduct Research, Training, Awareness, Implementation and Development projects.

Journey so far

ORDER has successfully completed fifteen years of developmental service. It has touched around 380 resource poor remote villages in Tumkur, Hassan, Mandya and Chitradurga districts covering more than 30,000 poor, small, marginal and landless families.

Main objective of all programs was to improve the income/ health and living standard of the farmer community, especially the poor, small, marginal and landless families and ensure visible changes in improving the socio-economic status of the project supported families.

Primary project intervention areas have been

- Watershed development
- Agriculture and integrated farming/sustainable farming
- Village and tribal community development projects for livelihood development

A source of constant support and motivation have been the funding partners that include NABARD, Department of Agriculture and Watershed, Zilla Panchayaths of Government of Karnataka, Coconut Development and Bio-fuel Development Board, CSR funding partners like Suzlon foundation and Concern India foundation etc.

Management Request and Support:

The MES College of Management contacted the NGO ORDER in order to seek guidance and assistance in carrying out Green Audit of their Institution. This was necessitated as Green Audit Report is a prerequisite to seeking NAAC Accreditation for the college for the current year.

This expression of interest was followed up by ORDER with an inspection visit to the college by Mr. Vittalkumar, Senior Environmental Auditor. The College agreed to the Audit plans drawn up after thorough discussions held with the Principal and support staff. The Green Audit was commenced with a detailed site visit of the college campus. Post which, interviews and secondary data was collected.

The Management of the MES Institution has shown strong commitment towards the green auditing. They were already in the path of implementing various green campus activities. The management is eager to understand the measures for better waste disposal or recycling. The management also intends to achieve financial resource optimization. The management of the college was willing to formulate policies based on the recommendations of the green auditing report

Scope of Audit 2015-2020

The following are the areas addressed in the scope of this Green Audit. The Audit covers a period of five years from 2015-2020 during which several environmental initiatives were undertaken by the college.

- Campus Built-up, eco-friendly & barrier free Environment
- Greenery Landscape Environment
- Waste segregation and management
- Green Transportation Measures
- Future Green Agenda and Plans
- Energy management* (based on audit done in 2018-19)

- Water Quality and management* (based on audit done in 2018-19)

Methodology:

The methodology of present study is based on onsite visits, the personal observations, Interviews and site survey with the management personnel.

- Preparation of checklist

A set of questions were prepared based on the data required and the guidelines of CPCB, New Delhi to conduct green audit which included month, year, staff and student strength over the last five years, number of departments, campus infrastructure, average working days and office timings. The information related to consumption of resources like water, electricity and handling of solid and hazardous waste were also collected.

- Physical inspection of the campus

The physical survey of the campus was conducted by the Audit team and this was facilitated by the staff of the college. The Campus was surveyed for physical infrastructure and maintenance of the same. Institutional data was once again facilitated by the college staff and as part of evidence gathering appropriate photographs of the campus and its environment were also taken. The Audit team also observed the green spaces and recorded the existing tree and plant species. The generated data is subsequently gathered and used for further analysis.

- Interview of key personnel

The Audit team conducted personal interviews with Principal, Manager, Teaching and Non-teaching staff of the college that led the Eco clubs and other activities. Collection of secondary data was done.

- Review of existing documents and records

Documents such as Energy Audit Reports, Water Audit Report, College website information, Rain water harvesting layout and plan, As built and Floor diagrams, electricity and water bills, laboratory reports of water Quality assessment were examined and data was collected.

- Review of policies

Discussions were made with the college Principal and concerned staff members regarding policies on environmental management. The college is very keen in bringing green practices in order to make an environment friendly centre for learning and research.

- Preparation of Green Audit Report

From the outcome of the overall study and upon consolidation of the data collected and reviewed, a final Green Audit report is prepared.

FOCUS AREA OF THE AUDIT AT MESIoM

- A. Eco-friendly and inclusive built up infrastructure
- B. Water Use, Conservation and Management
- C. Energy Use, Conservation and Management
- D. Solid Waste Management
- E. Green Area Management & Bio-diversity
- F. Environmental Initiatives

A. ECO-FRIENDLY CAMPUS INFRASTRUCTURE DESIGN

MES Institute of Management (MESIoM) is co-located in a common campus, within an institutional area in Rajajinagar, along with other MES institutions. MESIoM is situated in third and fourth floor of the campus building. The total carpet area is 1439 SqM (719.19+719.76 SQM each floor), covered with a sheet roof terrace with rainwater harvesting structures attached.

Classrooms

MESIoM has large and spacious classrooms with good ventilation and natural lighting, students are provided with comfortable and ergonomically designed desks. Use of eco-friendly building materials were observed such as aerocon bricks/blocks as well as sandwiched roofing material. Topmost floor (fourth floor) walls are built with eco-friendly aerocon blocks that will reduce the indirect thermal heat gain and thereby reducing the need for air conditioning as well as cooling the spaces inside (classrooms, conference halls, corridor and labs).

Apart from being eco-friendly these blocks are also light weight with high thermal insulation and fire resistance. Buildings constructed out of these blocks ensure long term sustainability and save a lot of water during the construction. It was also observed these block works are not plastered reducing the need for more cement which is embodied carbon.



They are easy to install and can complete the construction procedure in a shorter span in case of scarcity of labour and in the usage of mortars. The required time to complete a building with aerocon blocks is 1/3rd lesser than that of the conventional building materials. One of the eco-friendly characteristics of aerocon blocks is that they do not emit VOC (Volatile Organic Compounds) which leads to environmental pollution.

Computer Lab

The college has a well-equipped and well-furnished computer lab which has around 30 computers with high speed internet facility. Tally programme is conducted every year in the lab to update the students about computerized accounting. Apart from this, online PDP sessions are also conducted.

Commerce Lab

The Commerce lab is suitably equipped with computers, printers and working stations for students and staff to carry out their assignments

Library

The college has a big and well stacked library. It caters to the needs of the students and faculty alike. A wide range of academic and reference books are available. A lot of newspapers and periodicals are subscribed to in English, Hindi and Kannada.

Conference Hall

A large Conference hall on the fourth level with good seating capacity that caters to all college events and student collaborations. The hall has tiled roofing on top and large

windows that open to outside space giving it ample natural lighting and ventilation. Because of the thermally insulated sandwiched roofing, that prevents solar heat gain, there was no requirement to provide air conditioning in this hall, thereby conserving electricity, which is one of the efficient design parameter observed.



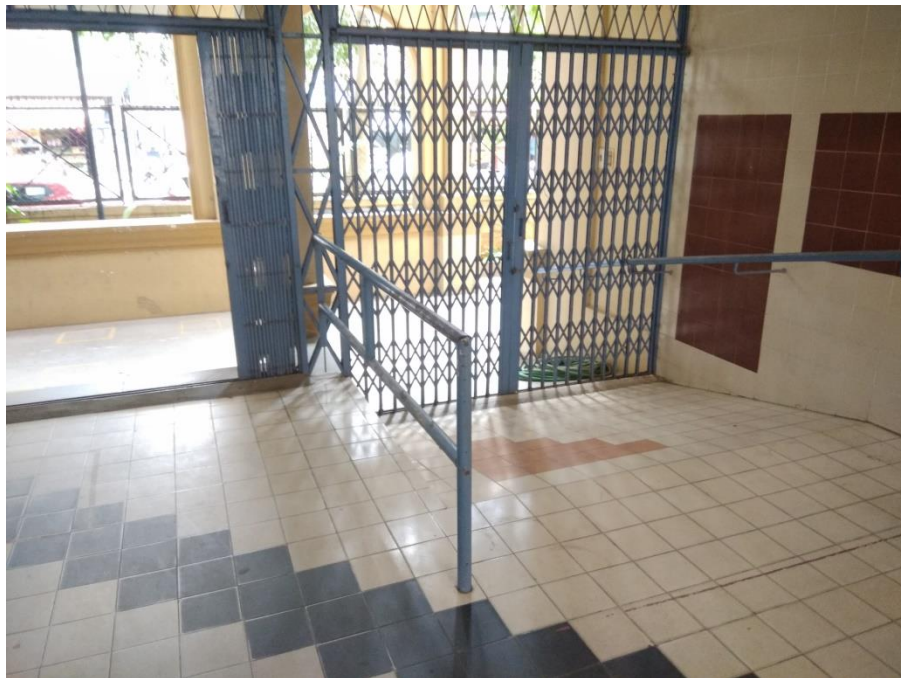
Open spaces:

The classrooms overlook to green spaces with ample natural lighting and ventilation. Hence there is nil usage of artificial lighting during the day and cooling is kept to minimum in the summers as there is room for cross ventilation for plenty of fresh air to flow into each and every space within the built up area. Corridor space is well lit with natural light as well as decorated with rows of medicinal plants, supplying the corridor space with fresh oxygen and refreshing green corridor spaces.



Inclusive Spaces:

The Campus is designed to be sensitive to the needs of differently abled persons and barrier free access has been provided. An access ramp is enabled at the main entrance of the college as well as people with disabilities (PWD) toilets are being constructed for the benefit of male as well as female PWD one each at each floor.



B. WATER USE AND MANAGEMENT

Water conservation is a key activity as water is a vital environment resource that sustains life on the planet. Hence conscientious and judicious usage of water is imperative.

Water and Waste Water Audit

A water audit is an on-site survey and assessment to determine the water use towards improving its efficient usage. This area addresses types of water sources, water storage, quantity and pattern of water consumption, water quality assessment, wastewater treatment and usage and rainwater harvesting and usage.

MES Institutions have proactively conducted a detailed Water Audit of this Campus in the year 2017. Hence, this green audit reproduces some of the key finding of the detailed water audit in below sections. However we recommend referring the detailed water audit report of 2017 for more information.

Sources of Water

Main source of water is Municipal Water from Bangalore Water Supply and Sewerage Board (BWSSB) added to this source ground water is also extracted to fulfil the requirement. At present there is 01 bore well in working condition.

The bore well is installed with 1.5 HP submersible pump at 350 ft depth and is operated manually whenever there is a need. The duration of pump operation is measured for electricity consumption but the quantum of water extracted is not measured by the management of the college.

The primary sources of water for the Institution are:

Borewell	4,681 Litres per day
BWSSB water supply	4,400 litres per day
No. of Sumps	3
No. of Water storage tanks (with capacity)	Sump1=20,830 Lts Sump2=13,610 Lts Sump3=13,610 Lts Total = 48,050 Lts Overhead Tanks=6,000 Lts
Tanker Water	Tanker water is not regularly obtained hence not considered as per water audit report

Usage of Water

The main purpose of water use in the campus is for Drinking + Flusing Rest rooms and wash areas and watering the Green areas.

As per the Water Audit Report, total of 9081 Lts of water can be pumped for the daily need of the college dwellers as well to meet the daily demands of the academic and administrative Departments. However, the daily use of the water during 2017 was approx. 4400 Lts per day. As the water systems are common infrastructure servicing the entire building, we couldn't ascertain water usage specifically for MESIoM. Provisions for drinking water is provided at every floor. An R.O plant is installed in one of the floors

It was observed that the MES Institutions adequately met the National Building Code (NBC) requirement of 45 Lts per capita per day (LPCD) requirement standard the a very low usage of 6.7 LPCD per student was measured as per the Audit Report.

Water Quality assessment

As per the Water Audit Report, the water quality assessment was conducted once and the source of water quality parameters were found to be below permissible limit values and water is fit for consumption as per the prescribed standards. However there are no regular water quality tests are conducted.

The MES Institution does not have any sub-metering nor automatic level control, leak detection system and all of fill out, shut off and leakages are controlled by manual observation and monitoring.

Since, three institutions share the water infrastructure, it's highly recommended for individual sub-metering and automated level control as well as leak monitoring system to be considered to implement for water conservation scheme.

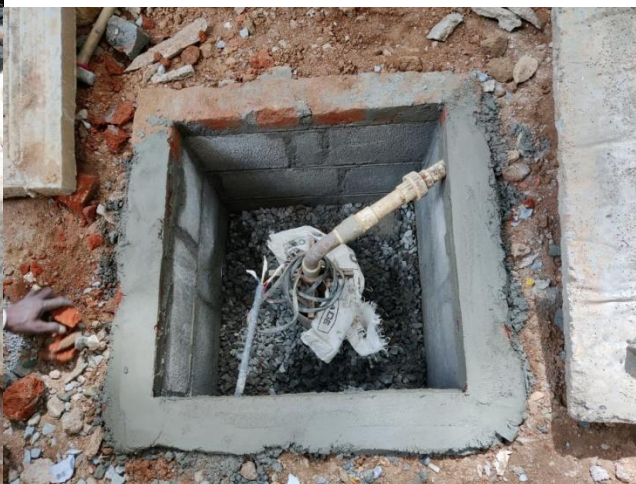
Rain Water Harvesting and Ground Water Recharge Structures

Indian cities like Bangalore face the paradox of acute water scarcity occurring alongside floods. Rain Water Harvesting (RWH) addresses both these issues by:

- Meeting a large part of the city's water demand, thus reducing water scarcity
- Capturing rainwater that would otherwise run off of paved surfaces and flood the streets

Bangalore gets around 970 mm of rain annually (long term average), spread across 6-8 months. In Bangalore, on average, every acre of land is estimated to get about 3.6 million litres of rain annually. If even a third of this water was recharged, the city's water and flooding problems would be significantly solved.

The MES Institutions have roughly 850 SqM roof area and the amount of rainwater that can be harvested from this rooftop is approximately 7,42,000 Lts per year. If a provision is made to store this quantity over 6 months, a lot of water can be conserved. Below are glimpses of RWH and GWR structures implemented at MESIoM.



Wastewater Management

The source waste water is mainly Sewage Water generated from all Toilets and grey water from wash areas. The water that is collected in the drains during rainfall is also disposed into main municipal sewerage pipes. Thus there is no treatment of the waste water and it is being released to the common drainage without any treatment which adds to the load of wastewater in sewerage lines. It's highly recommended to set up a Sewage Treatment Plant (STP) which is required as per BWSSB guidelines.

C. SOLID WASTE MANAGEMENT

Waste created at source, be it in the classrooms or departments is collected at the respective generation site in separate bins for Wet and Dry waste. Thus waste passes from several segregated bins to common larger bins everyday through the efforts of the housekeeping staff.

As tabulated below, on an average, the amount of solid waste generated on the campus

Waste Type	Avg Quantity per day/month/year	Method of disposal
Wet / Organic waste	2.5kgs/ 65 kgs/ 650 kgs	Composting
Recyclable waste (Plastic, Paper, Glass, metal etc)	1.5 kgs/ 39kgs/ 390 kgs	ITC contract
Non Recyclables	Negligible	BBMP
Sanitary Waste	0.5 kgs/ 13 kgs/ 130 kgs	In Situ Incineration
E waste	Negligible	ITC contract

- Biodegradable / Organic waste

Leaf litter from the green areas within the campus is the major component of organic waste. Some food leftovers are also collected in the bins on each floor. The college has constructed In-situ scientific composting structures to manage organic waste as shown below.



- Non- Biodegradable waste
Non –biodegradable waste forms the major component of the total waste generated on campus. Recyclable waste such as plastics packaging, shredded papers, broken glass, metal waste, etc., are collected and sent to ITC regularly.



The non-reclables that comprises of dust, discarded paper and plastic wrappers if any which is negligible quantity is disposed to BBMP bin.

- E- Waste

The e-waste includes out of order equipment or obsolete items like lab instruments, circuits, desktops, laptops and accessories, printer, charging and network cables, Wi-fi devices, cartridges, sound systems, display units, UPS, etc. E-waste is currently not generated in a negligible quantity which is disposed off through an authorized vendor.

- Sanitary Waste

The sanitary waste from women's restroom is disposed by means of a sanitary waste incinerator within the restroom itself. The rest room also has a sanitary napkin vending machine to facilitate the needs of women staff and students.



Existing waste management methods practiced

- Cleaning the campus on daily basis
- Segregated collection of waste by means of colour coded bins.
- Waste bins are placed in corridors, classrooms, library, labs, conference hall, office and staff rooms.
- Sanitary napkin Incinerators used to burn sanitary napkins.
- Paper waste, E-waste and plastic waste sent for recycling under contract with ITC.

D. ENERGY CONSERVATION AND MANAGEMENT

MES Institute of Management is co-located along with MES Teachers college, MES PU College in the same campus. The Institution building has a total site areas of approx.. 1903.45 SqM built up with Basement+Ground+Four floors structure accommodating three independent colleges. However the electrical systems are common to all three MES Institutions.

MES Institutions at this campus have proactively conducted a detailed Energy Audit of this Campus in the year 2017. Hence, this green audit reproduces some of the key finding of the detailed Energy Audit in below sections. However we recommend referring the detailed Energy Audit Report of 2017 for more information.

The Energy audit agency, Elpro Energy Dimentions has proposed many Energy Conservation Measures (ECMs) in detail in order to enable MES Institute of Management to invest time, money and efforts towards conserving not only money but also Environment. Out of Seven (07) EMCs proposed by Audit agency, MESIoM has so far implemented two ECMs such as Energy Efficiency LED lighting retrofits as well as Alterative Power, Solar PV system.

Below is progress so far regarding the LED lighting fixture retrofits program.

Sl.No	Room Number	No.of. Light points	CLF/TL	LED already installed	LED being installed
1	301	9	4	2	3
2	302	6	4	2	0
3	303	4	4	0	0
4	304	12	6	3	3
5	305	12	6	3	3
6	306	12	6	3	3
7	308	7	5	2	0
8	309	9	4	2	3
9	401	6	6	0	0
10	402	6	6	0	0
11	403	6	6	0	0
12	Conference Hall	33	33	0	0
13	Commerce Lab	3	3	0	0
14	Library	12	12	0	0
15	Computer Lab	9	9	0	0
16	3 rd Floor Corridor	20	13	7	0
17	4 th Floor Corridor	14	14	0	0
18	Steps	4	4	0	0
19	Stage (Conference Hall)	5	4	1	0
	Total	189	149	25	15

Solar PV Installation

MESloM is investing in the alternative electricity systems in order to conserve energy as well as save money. The Solar PV system comprises of 6 Nos. 30 Watt LED lamps supported by 100 Watt/12V Solar panel with charge controller for dusk to dawn controlled operation, and Installation work is in progress.



Green Transportation Measures

In the direction of adopting green transport and reduce carbon emissions, the college has dedicated a parking area for green vehicles. The parking slots come with charging facility for the Electric e-vehicles. The college is doing a commendable job and intends to attract the student and staff attention towards the adoption of e-vehicles into the campus.



Since, three institutions share the Electricity infrastructure, it's highly recommended for individual sub-metering and performance monitoring system to be considered to implement for energy conservation scheme.

E. GREEN AREA MANAGEMENT AND BIODIVERSITY

The MESloM College is located right on the main road in the bustling commercial area of Rajajinagar. There are large avenue trees on the street abutting the compound of the college. These include False Ashoka tree, Rain tree, Peepal tree, gooseberry tree etc. The college has a line of trees inside near the main entrance.



The courtyard space inside is largely kept open for student assembly, while a section of this courtyard is used to create greenery. A number of potted plants are placed here.

The existing tree and plant species have been recorded in the table below

Sl. No.	Tree / Plant Species	Family	Common name	Medicinal value
1	<i>Polyalthia longifolia</i>	Annonaceae	False Ashoka tree	
2	<i>Ficus religiosa</i>	Moraceae	Peepal	Used in ear drop, heals wounds, root bark cleans ulcers, prevent gum diseases, urinary troubles, the fruit is useful for asthma and many more. The leaves are also used as decorative

				items.
3	Acacia	Leguminosae	Banni	Rich in Vitamin C, thus used in common cold. Build immunity and excellent for hair growth
4	Syzygium cumini		Nerle / Jamun	
5	Pongamia pinnata			
6	Albizia lebbeck		Rain tree	
7	Azadirachta indica		Neem/ Bevina mara	Oil is used in various medicines against skin infections, as insect repellents etc
8	Phyllanthus embelica	Euphorbiaceae	Nellikai	
9			Palm	
10			Peace lily	
11	Vinca rosea			
12			Geranium	
13	Oscimum sanctum	Lamiaceae	Tulsi / Holy Basil	provides relief in fever, cold and cough, effective against insomnia, indigestion, etc.
14	Jasminum sambac		Jasmine	
15	Rosa sinensis	Malvaceae	Hibiscus	
16	Sansviera		Mother in law's tongue	
17	Nerium oleander			
18	Mimosa pudica	Mimosoideae		
19	Codium variegatum		croton	
20	Cynadon dactylon	Poaceae	Darba grass	

Green Corridor with indoor air purifying plants

The main corridor in the third and the fourth floors features a beautiful array of potted plants on raised platforms. These plants include Tulsi, Jasmine, Palms, Spider lilies, Money plants that are known to purify indoor air quality by absorbing most of the harmful gases such as Carbon Monoxide, Nitrogen Oxides, greatly enhance the aesthetics of the area as well as increase pure air circulation.



Medicinal Garden

The plants in the courtyard area are being developed into a medicinal garden. As of now the many the medicinal varieties such as Aloe vera, Tulsi, Vinca, Lemon, Betel vines etc. are present. The college has expressed its intention to convert this space into a full-fledged medicinal garden in the coming years.



Presence of common Fauna

The college campus though is mostly built up attracts commonly seen birds and insects such as squirrels, common myna, common crow, garden lizard, blue rock pigeons etc.



F. GREEN AGENDA

Ecology Club Activities

The MESloM Ecology Club, rechristened as 'Dharini', was initiated with the objective of creating awareness about environmentally sustainable practices and our implications to the planet. This year the Ecology Club conducted various events like –

- A tree plantation drive was conducted on the occasion of Vanamahotsava in association with Team Social Spotlight on 7th July 2019. The students planted saplings in a park in Attiguppe.
- On June 5th online E- quiz was conducted on the occasion of World Environment Day.

- On June 15th Dec 2019 cleanliness drive was organised in association with Team Social Spotlight and the students helped clean a park at Hosahalli.
- On 23rd July a State Level Webinar on 'A Bird's Eye view on Ethnomedicinal Plants' was conducted and Dr. Venugopal, Academic Secretary, Yadava Education Society, Rtd. Prof, Dept. of Botany, SJR College was the Guest Speaker.

Composition of Eco Club

Teacher Co-ordinators	Student Co-ordinators
Smt. Harini. M.S, IQAC coordinator and Vice Principal	Manjunath Hegde, III BCom
Smt. Anuradha. K Assistant Professor, Department of English	Sonesh. K , II BCom
Smt. Chitra. V Assistant Professor Department of commerce and management	Udith Patel, I BCom

WORLD ENVIRONMENT DAY (WED) Celebration



"THE EARTH IS WHAT ALL HAVE
IN COMMON, WHEN WE HEAL
THE EARTH WE HEAL
OURSELVES"

On account of WORLD ENVIRONMENT DAY (WED), a team of 3 people from Department of Commerce took the initiative to organise a National Level E-Quiz competition. The Objective

of the E quiz to mark the WED celebration was to impart knowledge required for conservation and utilisation of natural resources for the existence of mankind and to raise awareness and encourage actions to protect our world and environment. Also to inculcate waste minimization practices in student's habits and life style

The quiz competition was open for all the students and academicians from different colleges on June 5th 2020. An invitation was prepared in the form of an animated video and shared through the social media platform of whatsapp. Questions related to environment were prepared using Google forms and shared through a link. A total of 20 questions with 5 marks each was allotted and the participants who scored 40% and above were provided with E-Certificate through e-mail.

A total of 503 members participated in the quiz from different colleges across States in the country.

- (Link to view the Invitation video is given below)

<https://drive.google.com/file/d/1mwLBsCg0DJ1iAyR8HdEndXoiEUJ5Svcl/view?usp=drivesdk>

(Link to view the questions is given below)

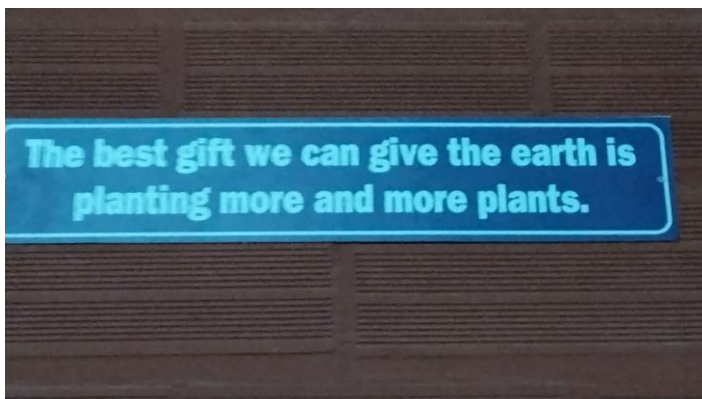
<https://forms.gle/N4LSqgEX2QtVa4d87>

Copy of certificate is attached below:



Environmental Awareness Posters

MESloM has displayed many motivational as well as Environmental Awareness creation signage across many locations such as, corridor, class rooms, wash rooms and near medicinal plantation. Below are a few photographs providing glimpses of awareness posters.



III. AUDIT FRAMEWORK AND DETAILED FINDINGS

The following audit framework is used for conducting Green Audit between 2015-20. The framework also lists the findings and observations for every focus area.

Focus Area	Standard Practices	Audit Observations
Water Use, Conservation and Management	Repair sources of water leakage, such as dripping taps.	Regular checking and maintenance of pipelines are to be done to control water wastage
	Minimize wastage of water and use of electricity during water filtration process, if used, such as R.O filter	Yes, the college has R.O filter for drinking water installed on one floor
	Use an efficient and hygienic water storage mechanism to minimize the loss of water during storage	The college has three underground sumps, one (01) functional tube well to ensure storage as well as emergency water use other than municipal supply
	Encourage to decrease excess water usage	Water usage is nominal in the college, especially because of the absence of science labs, but to ensure an optimum usage rate and pattern, placards and warnings need to be set up in the college premise
	Install water recycling mechanism	Water recycling is not adopted due to space constraint and low water consumption at washrooms
Energy Use, Conservation and Management	Appreciate that it is preferable to purchase electricity from a company that invests in new sources of renewable and carbon-neutral electricity.	The college is fully dependant on BESCO for electric supply. The college also dependent on Diesel generator for the supply of emergency electricity. Procuring green electricity yet to be explored
	Look in to the possibility of on-site micro-generation of renewable electricity.	The college is planning for introduction of SOLAR PANELS and in the process of procurement and installation
	Give preference to the most	The college is using LED

	energy efficient and environmentally sound appliances available	lights and planned for more retrofits.
	Encourage staff, students and conference guests to save energy through visible reminders, incentives and information to increase awareness. This particularly concerns turning off electrical appliances when not in use	Yes, the college has put several posters and reminder notes in classrooms and other relevant places to turn off electric appliances when not in use
	Monitor and understand the importance of different sources of college energy consumption	The college monitors and puts off main switch when there is no need of electricity.
	Ensures that all electronic and electrical equipment, such as computers, are switched off when not in use and is generally configured in power saving mode when such option is available	It is practiced
Waste Management	Make full use of all recycling facilities provided by Municipal body and private recyclers	The college has a tie up with ITC for periodic collection of recyclable waste.
	Compost, or cause to be composted, all organic and green waste	The college has set up composting pits that ensures proper treatment of all organic wastes.
	Recycle or safely dispose of dry wastes, computers and electrical appliances.	All dry wastes (paper, metal, glass, other dry waste, e-waste, etc.) are separated in different bins in the college and sent for recycling
	Dispose all waste, whether solid or otherwise, in a scientific manner and ensure that it is not released directly to the environment	Yes, the college disposes all wastes, whether solid or otherwise, in a scientific manner
	Make specific arrangements for events, such as community rallies, seminars and conferences in order to increase awareness	The college organized several seminar and community program by the departments to ensure both consciousness and

	regarding the 3Rs	awareness among students and community members.
Green Campus	Establish a Garden in the campus	A patch of medicinal plants garden is witnessed at present apart from the greenery in the corridor
	Encourage the faculties and students to plant trees in the garden	Being practiced
	Minimize the use of fertilizers and pesticides in college grounds, opting for the use of vermin compost produced on site wherever possible	Scientific Composting of green waste using composting pits initiated.
	Ensure that all cleaning products used by college staff have a minimal detrimental impact on the environment, i.e. are biodegradable and non-toxic	Hand washing sinks and restrooms use liquid soaps commonly available in the market.
Towards Zero Carbon campus	Ensure use of eco-friendly transport option	The college has a designated Electric charging points for the E-vehicles. The college also encourages transport by bicycle to students.
	Promote environmental awareness as a part of course work in various curricular areas, independent research projects, and community service	Conducts Tree planting activities during Vana Mahotsava day
	Create awareness of environmental sustainability and takes actions	E quiz was conducted on the occasion of World Environment Day

Conclusion & Recommendation

Green Audit is the most efficient way to identify the strength and weakness of environmentally sustainable practices in an organisation / Institution. It is a professional approach towards a rational and responsible way in utilising economic, financial, social and environmental resources. Green audits can “add value” to the management approaches being taken by the college and is a way of identifying, evaluating and managing environmental risks (known and unknown). There is scope for further improvement, particularly in relation to waste, energy and water management. The college in recent years has taken cognisance of the environmental impacts of most of its actions and has made a concerted effort over the years to function in an environmentally responsible manner.

Some of the practices are about a few years old, while others are new like the LED bulbs, sanitary waste incinerator etc., and many others are in the pipeline. The college does perform fairly well when it comes to many environmental parameters.

The recommendations in this report highlight many ways in which the college can work to improve its actions and become a more sustainable institution.

Green Audit Recommendations

Focus Area	Recommendation
Water Use and Management	Periodic maintenance of RWH installation and Proper utilisation plan for the rain water harvested
	Allow for adequate rain soak pits for ground water recharge
	Adopt automatic leak detection system for spotting water wastage
	Water meters to be installed for each floor and on Bore Well water extraction system as per the guideline of Central Ground Water Board
	The water Conservation Awareness Program to be conducted on World Water Day on 22nd March every year
	Consider setting up water recycling unit where the recycled water can be used for flushing and gardening
Waste Management	Proper use and maintenance of composting pits to manage wet waste and obtain natural compost
	Properly labelled colour coded waste collection bins
	Create and implement waste segregation and management policy and encourage adherence to the system by all its users, students and teachers alike
Electricity/Water/Utility	Install, floorwise electricity and water meters to monitor

monitoring program	utilities usage
	Allocate staff to carry out meter reading of daily electricity, water, waste quantification
	Monitor data periodically and create a spread sheet for yearly review
	Compare utility bills to monitor year on year reduction of resource utilisation
Greening and Biodiversity	Name all the trees and plants with its common name and scientific name, especially the medicinal plants
	Maintain a vegetable or a medicinal garden with the involvement of Eco club and build awareness regarding medicinal properties through bulletin boards.
	Ensure tree plantation drives are compulsorily implemented on all green occasions such as WED, Earth day, Water day, Biodiversity Day etc.
Environment Management System	Adopt an Environment Policy and ensure it is displayed within the college and on digital platforms
	Set up an environment management & conservation system, water, energy and waste in small way and try to set and achieve short goals
	Conduct exhibitions / seminars for students, parents and public on environment and sustainable practices
	Organize earn while learn eco-friendly programmes
	Convene college faculty and administrators with environmental practitioners to develop interdisciplinary approaches to curricula, research initiatives, operations, and outreach activities.
	Consider moving towards becoming a plastic free and zero waste campus
E waste Collection	As per E-waste rules 2016 monthly inventory of the E waste management has to be maintained within the campus.
Energy	Consider total replacement of CFL and incandescent lamps with LED lights soon
	Consider setting up of large rooftop solar panels to generate electricity to supplement the day time energy demands of the campus
	Energy and flow meters to be installed for monitoring of energy and water consumption building wise/department wise.



Mysore Education Society (Regd.)

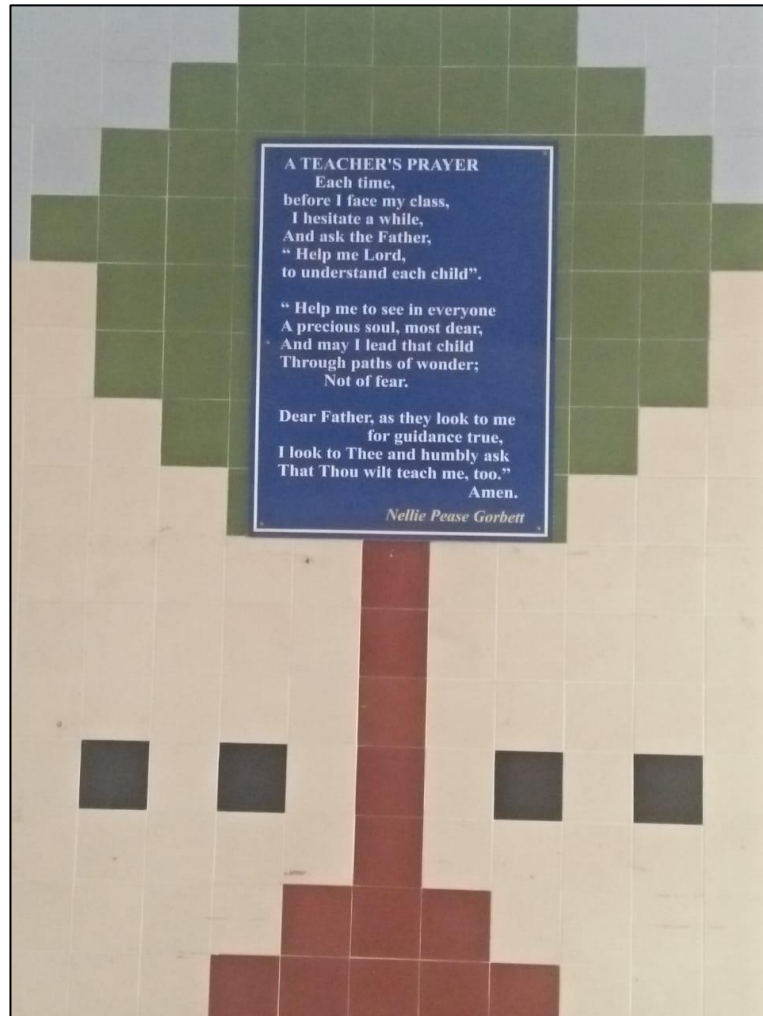
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