



## CRITERION VII

### Green Audit



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Key indicator  
7.1

Metric  
7.1.6

***GOVT. M. H. COLLEGE OF HOME SCIENCE  
AND SCIENCE FOR WOMEN, JABALPUR***

# *GREEN AUDIT REPORT*



**SESSION 2023-24**

**Govt. M.H. College of Home Science &  
Science for Women Autonomous Jabalpur (M.P.)**

## **GREEN AUDIT REPORT**

### **Executive Summary**

Green auditing is the process of identifying and determining whether institutions practices are eco-friendly and sustainable. Traditionally, we are good and efficient users of natural resources. But over the period, excess use of resources like energy, water, and chemicals has become habitual for everyone, especially in common areas. Now, it is necessary to check whether our processes are consuming more than the required resources? Whether we are handling waste carefully? Green audit regulates all such practices and gives an efficient way of natural resource utilization. In the era of climate change and resource depletion, it is necessary to verify the processes and convert them into green and clean ones. The green audit provides an approach for it. It also increases overall consciousness among the people working in an institution towards an environment.

Modernization and industrialization are the two important outputs of the twentieth century that have made human life more luxurious and comfortable. Simultaneously, they are responsible for voracious use of natural resources, exploitation of forests and wildlife, producing massive solid waste, polluting the scarce and sacred water resources and finally making our mother Earth ugly and inhospitable. Today, people are getting more familiar with global issues like global warming, greenhouse effect, ozone depletion, climate change, etc. Now, it is considered a final call by mother Earth to walk on sustainable development. The time has come to wake up, unite and combat together for a sustainable environment.

Considering the present environmental problems of pollution and excessive use of natural resources, Hon. Prime Minister, Shri. Narendra Modiji has declared the Mission of Swachh Bharat Abhiyan. Also, University Grants Commission has mentioned the "Green Campus, Clean Campus" mission mandatory for all higher educational institutes. 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.

Green Audit is the most efficient ecological tool to solve such environmental problems. It is a process of regular identification, quantification, documenting, reporting, and monitoring of environmentally important components in a specified area. Through this process, regular environmental activities are monitored within and outside of the concerned sites, which directly and indirectly impact the surroundings. The green audit can be one of the initiatives for such institutes to account for their energy, water resource use, and wastewater, solid waste, E-waste, and hazardous waste generation. The green Audit process can play an important role in promoting environmental awareness and sensitization about resource use. It can create consciousness towards ecological values and ethics. Through the green audit, one can get direction about how to improve the condition of the environment.

Govt. M H College of Home Science & Science for Women (Autonomous) Jabalpur is deeply concerned and unconditionally believes that there is an urgent need to address these fundamental problems and reverse the trends. Being a premier institution of higher learning, the college has initiated 'The Green Campus' that actively promote the various projects for the environment protection and sustainability. The purpose of the audit was to ensure that the practices followed in the campus are in accordance with the Green Policy adopted by the institution. The methodology include: preparation and tilling up of questionnaire, physical inspection of the campus, observation and review of the documentation, interviewing key persons and data analysis, measurements and recommendations- It works on the several facets of Green Campus' including Water Conservation, Tree Plantation. Waste Management, Paperless Work. Alternative Energy and Mapping of Biodiversity with this in mind, the specific objectives of the audit are to evaluate the adequacy of the management control framework of environment sustainability as well as the degree to which the Departments are in compliance with the applicable regulations policies and standards. It can make a tremendous impact on student health and learning college operational costs and the environment. The criteria, methods and recommendations used in the audit were based on the identified risks.

## **1. Introduction**

Green Audit can be defined as systematic identification, quantification, recording, reporting and analysis of components of environmental diversity. The 'Green Audit' aims to analyze environmental practices within and outside the college campus, which will have an impact on the eco-friendly ambience. It was initiated with the motive of inspecting the work conducted within the organizations whose exercises can cause risk to the health of inhabitants and the environment. Through Green Audit, one gets a direction as how to improve the condition of environment and there are various factors that have determined the growth of carrying out Green Audit.

Green audit is assigned to the criteria 7 of NAAC, National Assessment and Accreditation Council which is a self governing organization of India which declares the institutions as Grade A, B or C according to the scores assigned during the accreditation.

### **1.1 About the College**

Govt. M. H. College of Home Science & Science for Women (Autonomous) Jabalpur is a NAAC (B<sup>+</sup>) Graded.

The college has also adopted the 'Green Campus' system for environmental conservation and sustainability. There are main three pillars i.e. zero environmental foot print, positive impact on occupant health and performance and 100% graduates demonstrating environmental literacy. The goal is to reduce CO<sub>2</sub> emission, energy and water use. while creating an atmosphere where students can learn and be healthy. The 'Green Campus' has been active since years both as an assembly group of sub committees that actively promote the various projects. The college administration works on the several facets of \*Green Campus' including Water Conservation. Tree Plantation. Waste Management. Paperless Work. Alternative Energy and Mapping of Biodiversity.

## **2. Objectives of the Study**

The main objective of the green audit is to promote the Environment Management and Conservation in the College Campus. The purpose of the audit is to identify, quantify, describe and prioritize framework of Environment Sustainability in compliance with the applicable regulations, policies and standards. The main objectives of carrying out Green Audit are:

1. To introduce and aware students to real concerns of environment and its sustainability
2. To secure the environment and cut down the threats posed to human health by analyzing the pattern and extent of resource use on the campus.
3. To establish a baseline data to assess future sustainability by avoiding the interruption in environment that are more difficult to handle and their corrections requires high cost.
4. It'll bring out a status report on environmental compliance.

### **3. Methodology**

In order to perform green audit, the methodology included different tools such as preparation of questionnaire, physical inspection of the campus, observation and review of the documentation, interviewing key persons and data analysis, measurement and recommendations. The study covered the following areas to summarize the present status of environment management in the campus:

- ✓ Water management
- ✓ Energy Conservation
- ✓ E-Waste management
- ✓ Green area management

### **4. Observations and Recommendations**

#### **4.1. Water Use**

This indicator addresses water consumption, water sources, irrigation, storm water, appliances and fixtures. A water audit is an on-site survey and assessment to determine the water use and hence improving the efficiency of its use.

##### **a) Observations**

The study observed that weathered water and municipal/bore-well supply are the two major sources of water. Water is used for drinking purpose, canteen, toilets, laboratory and gardening. During the survey, no loss of water is observed, neither by any leakages, nor by overflow of water from overhead tanks. The data collected from all the departments is examined and verified. On an average the total use of water in the college is 20,000 L/day, which include 5,000 L/day for domestic purposes, 10,000 L/day for gardening and 5,000 L/day for different laboratories. Rainwater harvesting units are also in process to be functional for storing and reuse by authorized Govt. Agency, Gardens are watered by using tank storage irrigation system to save water.

##### **b) Recommendations**

1. Need of monitoring, controlling overflow is essential and periodically supervision drills should be arranged. In campus small scale/medium scale/large scale reuse and recycle of water system is necessary. Immediate repairing of drainage system is required.
2. Minimize wastage of water and use of electricity during water filtration process, if used, such as RO filtration process and ensure that the equipment's used for such usage are regularly serviced and the wastage of water is not below the industry average for such equipment's used in similar capacity.
3. Ensure that all cleaning products used by college staff have a minimal detrimental impact on the environment, i.e. are biodegradable and non-toxic, even where this exceeds the Controls Of Substances Hazardous to Health (COSHH) regulations.

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## **4.2. Energy Use and Conservation**

This indicator addresses energy consumption, energy sources, energy monitoring, lighting, appliance, natural gas and vehicles. Energy use is clearly an important aspect of campus sustainability and thus requires no explanation for its inclusion in the assessment.

### **a) Observation**

Energy source utilized by all the department and common facility centre is electricity only. Total energy consumption is determined as 112923 KWH/Year by major energy consuming Equipments.

All the departments and common facility centers are equipped with CFL lamps. Besides this, 150KWH Solar energy supplied to the main grid every day is generated by photovoltaic cells are also installed in the campus as an alternate renewable source of energy. Equipments like composters are used with power saving mode. Also, campus administration runs switch-off drill on regular basis. In science department like Physics, Chemistry, Mathematics, Botany, Zoology, Microbiology and Biotechnology electricity was shut down after occupancy time is one of green practices for energy conservation.

### **b) Recommendation**

1. Support renewable and carbon-neutral electricity options on any energy purchasing consortium, with the aim of supplying all college properties with electricity that can be attributed to renewable and carbon-neutral sources.
2. Appreciate that it is preferable to purchase electricity from a company that invests in new sources of renewable and carbon-neutral sources.
3. Installation of LED lamps instead of CFL.

## **4.3. Waste Generation**

This indicator addresses waste production and disposal of different wastes like paper, food, plastic, biodegradable, construction, glass, dust etc and recycling. Furthermore, solid waste often includes wasted material resources that could otherwise be channeled into better service through recycling, repair, and reuse. Solid waste generation and management is a burning issue. Unscientific handling of solid waste can create threats to everyone. The survey focused on volume, type and current management practice of solid waste generated in the campus. The different solid wastes collected as mentioned above.

### **a) Observations**

The total solid waste collected in the campus on an average is 71 Kg/day. Waste generation from tree droppings and lawn management is a major solid waste generated in the campus. The waste is of chemical waste generated in chemistry and zoology laboratories is also practiced. Single sided used papers reused for writing and printing in all departments. Very less plastic waste (0.1 Kg/Day) is generated by some departments, office, garden etc. but it is neither categorized at point source nor sent for recycling. Metal waste and wooden waste is stored and given to authorized scrap agents for further

processing. Few glass bottles are reused in the laboratories. The food waste from main canteen and mess is used or sent for vermin-composting.

**Vermin-composting Project:** The institute has adopted vermin-culture composting in hostel & garden on 300 sq.ft. land. The main purpose of this is to reduce disposable waste in the college campus. After complete process of vermin-composting, it is used as manure in the garden and lawns. Awareness program among farmers is also conducted in the village nearby by NSS Units.

#### **b) Recommendations**

1. Reduce the absolute amount of waste that it produces from college staff offices.
2. Make full use of all recycling facilities provided by City Municipality and private suppliers, including glass, cans, white, colored and brown paper, plastic bottles, batteries, print cartridges, cardboard and furniture.
3. Provide sufficient, accessible and well-publicized collection points for recyclable waste, with responsibility for recycling clearly allocated.
4. Single sided papers to be used for writing and photocopy.
5. Important and confidential papers after their validity to be sent for pulping.

#### **4.4. E-Waste Generation**

E-Waste can be described as consumer and business electronic equipment that is near or at the end of its useful life. This makes up about 5% of all municipal solid waste worldwide but is much more hazardous than other waste because electronic components contain cadmium, lead, mercury, and polychlorinated biphenyls (PCBs) that can damage human health and the environment.

#### **a) Observations**

E-waste generated in the campus is very less in quantity. The cartridges of laser printers are refilled outside the college campus. Administration conducts the awareness programs regarding E-waste Management with the help of various departments. The E-waste and defective item from computer laboratory is being stored properly. The institution has decided to contact approved E-waste management and disposal facility in order to dispose E-waste in scientific manner.

#### **b) Recommendations**

1. Recycle or safely dispose of white goods, computers and electrical/electronic appliances.
2. MOU and Tie-ups with authorized Govt. agencies are suggested.
3. Always purchase recycled resources where these are both suitable and available.

#### **4.5. Green Area**

This includes the plants, greenery and sustainability of the campus to ensure that the buildings confirm to green standards. This also helps in ensuring that the Environmental Policy is enacted, enforced and reviewed using various environmental awareness programs.

##### **a) Observations**

Campus is located in the vicinity of approximately 200 types (species) trees. Various tree plantation programs are being organized during the month of July and August at college campus and surrounding villages through NSS and NCC units. This program helps in encouraging eco-friendly environment which provides pure oxygen within the institute and awareness among villagers. The plantation program includes various type of indigenous species of ornamental and medicinal wild plant species.

#### **Green Area of the College**

##### **b) Recommendations**

1. Reviews periodically the list of trees planted in the garden, allot numbers to the trees and keep records. Give scientific names of the trees.
2. Promote environmental awareness as a part of course work in various curricular areas, independent research projects and community service.
3. Create awareness of environmental sustainability and takes actions to ensure environmental sustainability.
4. Establish a College Environment Committee that will hold responsibility for the enactment, enforcement and review of the Environmental Policy. The Environmental Committee shall be the source of advice and guidance to staff and students on how to implement this Policy.
5. Ensure that an audit is conducted annually, and action is taken on the basis of audit report, recommendation and findings.
6. Celebrate every year 5<sup>th</sup> June as 'Environment Day' and plant trees on this day to make the campus Greener.

## 5. Conclusion

Considering the fact that the institution is predominantly a postgraduate college, there is significant environmental research both by faculty and students. The environmental awareness initiatives are substantial. The installation of solar panels, paperless work system and vermin-composting practices are noteworthy. Besides, environmental awareness programs initiated by the administration shows how the campus is going green. Few recommendations are added to curb the menace of waste management using eco-friendly and scientific techniques. This may lead to the prosperous future in context of Green Campus & thus sustainable environment and community development.

As part of green audit of campus, we carried out the environment monitoring of campus includes Illumination, Noise level, Ventilation and Indoor Air quality of the classroom. It was observed that illumination and Ventilation is adequate considering natural light and air velocity present. Noise level in the campus well within the limit i.e. below 50 dB at day.



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## **GREEN CAMPUS MANAGEMENT**

1. Garden area in the college campus is 1.13 acre.
2. The students spend time in garden.
3. The scientific names of the trees are displayed on the trees in the campus.
4. There are many medicinal plants grown in Botanical Garden.
5. Compost fertilizers: Neem cake, Mustard cake, Urea, DAP are used in the garden.
6. Pesticides Nuven, Phorate, Rager are used in minimum quality.
7. There are two composting pit in the college campus. Generated compost is used in the garden.
8. There is a botanical garden in the college campus.
9. The nature awareness programs are conducted in the campus are plantation and Eco club activity slogan competition poster competition etc.
10. During practical practices, students perform different types of vegetative propagation methods on different types of plants.
11. There is a service providing agency for maintenance of garden.

### **Routine Green Practices**

03/05/2023	-	05/06/2023 Plantation
05/06/2023	-	World Environment Day
28/08/2023	-	Plantation, Environment Awareness programme
25/09/2023	-	Workshop on Beej Ganesh Preparation
16/12/2023	-	Preparation of Oxygen Rich Corner In Botany Department
24/11/2023	-	Swarojgar mela - Nursery Plants, Herbal Tea Preparation
23/01/2024	-	Quiz competition 'Save environment
24/01/2024	-	Swachhta Abhiyan Poster Competition on Wetland Conservation, Essay Writing on Wetland Bachao Abhiyan,
10/02/2024	-	Human chain for awareness of Environment Conservation
28/02/2024	-	Science Day, Herbal Tea Preparation, Nursery Plants

25.	Imli	<i>Tamarindus indica</i>	4
26.	Ashok	<i>Polyalthia longifolia</i>	47
27.	Jhaow	<i>Casurina</i>	1
28.	Nilgiri	<i>Eucalyptus sp</i>	6
29.	Munga	<i>Moringa oleifera</i>	1
30.	Madhukamini	<i>Murraya paniculata</i>	1
31.	Sitafal	<i>Annona Squamosa</i>	1
32.	Bargad	<i>Ficus benghalensis</i>	2
33.	Copper pod tree	<i>Peltaphorum sp</i>	7
34.	Pride of India	<i>Lagerstroemia speciosa</i>	6
35.	Cornish palm	<i>Areca sp.</i>	4
<b>TOTAL</b>			<b>229</b>

#### LIST OF MEDICINAL PLANTS IN THE GARDEN

1.	Sarpagandha ( <i>Rauwolfia serpentina</i> )
2.	Wild Garlic ( <i>Allium ursinum</i> )
3.	Patharchatta ( <i>Bryophyllum pinnatum</i> )
4.	Sadabahar ( <i>Catharanthus roseus</i> )
5.	Neem ( <i>Azadirachta indica</i> )
6.	Tulsi ( <i>Ocimum sanctum</i> )
7.	Banyan ( <i>Ficus benghalensis</i> )
8.	Aloe vera ( <i>Aloe barbadensis miller</i> )
9.	Lemon Grass ( <i>Cymbopogan</i> )
10.	Meethi Tulsi ( <i>Stevia rebaudiana</i> )
11.	Ashwagandha ( <i>Withania somnifera</i> )
12.	Nirgundi ( <i>Vitex negundo</i> )
13.	Vajradanti ( <i>Barleriap rionitis</i> )
14.	Kali Mirch ( <i>Piper nigrum</i> )
15.	Harsingar ( <i>Nyctanthes arbor-tristis</i> )
16.	Mango ( <i>Mangifera indica</i> )
17.	Tejpatta ( <i>Cinnamomum tamela</i> )
18.	Datura ( <i>Datura stamonium</i> )
19.	Shatavari ( <i>Asparagus racemosus</i> )
20.	Meethi Neem ( <i>Murraya koenigii</i> )
21.	Pencil cactus ( <i>Euphorbia tirucalli</i> )
22.	Butch ( <i>Acorus calamus</i> )
23.	Kali Haldi ( <i>Curcuma caesia</i> )
24.	Adusa ( <i>Adhathoda vasica</i> )

25.	Gudmar ( <i>Gymneme sylvestre</i> )
26.	Kewda ( <i>Padanus odorifer</i> )
27.	Jason/Gudhal ( <i>Hibiscus rosa-sinensis</i> )
28.	Ginger grass ( <i>Cymbopogan martini stapvarsofia</i> )
29.	Lemon ( <i>Citrus medica</i> )
30.	Palas ( <i>Butea monosperma</i> )
31.	Hathjor ( <i>Cissus quadrangularis</i> )
32.	Bahera ( <i>Termanalia belerica</i> )
33.	Madar ( <i>Calotropis procera</i> )
34.	Peepal ( <i>Ficus religiosa</i> )
35.	Nilgiri ( <i>Eucalyptus</i> )
36.	Mehndi ( <i>Lawsonia inermis</i> )
37.	Shivnath ( <i>Oroxylum indicum</i> )
38.	Sindoor ( <i>Bixa orellana</i> )
39.	Anar ( <i>Punicar anatum</i> )
40.	Kumbhi ( <i>Careya arborea</i> )

## GREEN CAMPUS

Total number of tree/plants species identified-35

Tree cover of the campus-0.51 ACRE

Free space in the campus-3.51 ACRE

Garden area inside the college-1.13 ACRE

Total campus area - 14.41 ACRE

## **LIST OF GARDEN PLANTS IN THE CAMPUS**

1. Petunia
2. Ixora
3. Fern
4. Tegatus
5. Coleus
6. Nasturtium
7. Crysanthemum
8. Dahalia
9. Bougainvillia
10. Cycas
11. Euphorbia
12. Dracaena
13. Royal Palm
14. Rosa
15. Hibiscus
16. Salvia
17. Dianthus
18. Delphinium
19. Calendula 20. Madhukamini
21. Lal Patta 22. Vidhya
23. Areca palm
24. Mongra
25. Chandini
26. Tredecantia
27. Thuja

### **Epiphyte**

1. Vanda
2. Loranthus

### **Hydrophyte**

Hydrilla

### **Fruit Trees in the campus**

Jamun, Mango, Amrud, Bel

## SEASONAL PLANTS OF COLLEGE CAMPUS

1.	Bougainvillea
2.	Crepe Jasmine / Chhandani
3.	Rose / Gulab
4.	Lantana
5.	Adenium
6.	Hibiscus / Gulmohar
7.	Nasturtium
8.	Merigold / Genda
9.	Lily
10.	Rajnigandha
11.	Portulaca
12.	Bixa/ Sinduri
13.	Dahalia
14.	Calandula
15.	Antirrhinum
16.	Penji Flower
17.	Salvia
18.	Aster
19.	Verbena
20.	Gazania
21.	Chrysanthemum
22.	Vinca / Sadabahar
23.	Navrang
24.	Kochia

## Nakshatras Plants

Each of the 27 constellations in Vedic astrology, also known as Nakshatras, is associated with specific plants. Here are some examples:

- |                       |   |                                    |
|-----------------------|---|------------------------------------|
| 1. Ashwini            | - | Fig tree                           |
| 2. Bharani            | - | Milkweed plant                     |
| 3. Krittika           | - | Banyan tree                        |
| 4. Rohini             | - | Palash or Flame of the Forest tree |
| 5. Mrigashira         | - | Bamboo tree                        |
| 6. Ardra              | - | Arjuna tree                        |
| 7. Punarvasu          | - | Arka or Calotropis gigantea        |
| 8. Pushya             | - | Palash or Flame of the Forest tree |
| 9. Ashlesha           | - | Bilva or Bael tree                 |
| 10. Magha             | - | Banyan tree                        |
| 11. Purva Phalguni    | - | Sensitive plant                    |
| 12. Uttara Phalguni   | - | Cluster fig tree                   |
| 13. Hasta             | - | Sandalwood tree                    |
| 14. Chitra            | - | Palash or Flame of the Forest tree |
| 15. Swati             | - | Arjuna tree                        |
| 16. Vishakha          | - | Jamun or Java Plum tree            |
| 17. Anuradha          | - | Arjuna tree                        |
| 18. Jyeshtha          | - | Peepal or Sacred fig tree          |
| 19. Moola             | - | Amla or Indian Gooseberry tree     |
| 20. Purva Ashadha     | - | Ashoka tree                        |
| 21. Uttara Ashadha    | - | Peepal or Sacred fig tree          |
| 22. Shravana          | - | Jambu or Jamun tree                |
| 23. Dhanishta         | - | Indian Elm tree                    |
| 24. Shatabhisha       | - | Palash or Flame of the Forest tree |
| 25. Purva Bhadrapada  | - | Wood-apple tree                    |
| 26. Uttara Bhadrapada | - | Cluster fig tree                   |
| 27. Revati            | - | Peepal or Sacred fig tree          |

These associations reflect the rich cultural and spiritual significance of plants in Vedic astrology and traditional Indian beliefs.

## Navgraha Vatika

Navgraha Vatika typically refers to a garden that represents the nine celestial bodies or planets in Hindu astrology. The plants associated with each of the nine celestial bodies are as follows:

1. \*Surya (Sun):\* Sunflower, Marigold, and other bright, vibrant flowers.
2. \*Chandra (Moon):\* Jasmine, Lotus, and other white or light-colored flowers.
3. \*Mangala (Mars):\* Red flowers such as Red Roses, Hibiscus, and Palash.
4. \*Budha (Mercury):\* Green plants such as Money Plant, Ferns, and small herbs.
5. \*Guru (Jupiter):\* Yellow flowers such as Yellow Roses, Chrysanthemum, and Marigold.
6. \*Shukra (Venus):\* White flowers such as White Roses, Jasmine, and Ashoka.
7. \*Shani (Saturn):\* Blue or black flowers such as Blue Salvia, Blue Petunia, and Black Iris.
8. \*Rahu (North Lunar Node):\* Night-blooming flowers such as Night-Blooming Jasmine and Evening Primrose.
9. \*Ketu (South Lunar Node):\* Indigenous or wild plants that are not commonly cultivated.

These plants are often included in a Navgraha Vatika to symbolize the different celestial bodies and bring harmony and balance to the garden.

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THINK GREEN

**SESSION 2022-23**

**Govt. M.H. College of Home Science &  
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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 contribution towards 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.

On this background it becomes essential to adopt the system of the Green campus. for the institute which will lead for sustainable development and at the Same time reduce a sizable amount of atmospheric carbon dioxide from the environment. The National Assessment and Accreditation Council New Delhi (NAAC) has made it mandatory that all Higher Educational Institution should submit an annual Green Audit Report. Moreover, it is part of, "Corporate Social Responsibility of the Higher Educational Institution to ensure that they contribute towards the reduction of global warming through carbon footprints reduction measures.

In recent time, the Green Audit of an Institution has been becoming a paramount. important for self assessment of the institution which reflects the role of the institution in mitigating the personal environmental problem. Many institutions undertake lot of good measures to resolve these problems but are not documented due to lack of green documentation awareness. All this non Scholastic efforts of the administration play an important role in ensuring the green quotient of the campus is intact. Therefore the purpose of the present green audit is to identify quantify, describe and prioritize framework of environment sustainability in compliance with the applicable regulations, policies and standards.

A nation's growth starts from its educational institutions, where the ecology is thought as a prime factor of development associated with environment. A clean and healthy environment aids effective learning and provides a conducive learning environment. Educational institutions now a day are becoming more sensitive to environmental factors and more concepts are being introduced to make them eco-friendly. To preserve the environment within the campus, various viewpoints are applied by the several educational

## 5. Conclusion

Considering the fact that the institution is predominantly a postgraduate college, there is significant environmental research both by faculty and students. The environmental awareness initiatives are substantial. The installation of solar panels, paperless work system and vermin-composting practices are noteworthy. Besides, environmental awareness programs initiated by the administration shows how the campus is going green. Few recommendations are added to curb the menace of waste management using eco-friendly and scientific techniques. This may lead to the prosperous future in context of Green Campus & thus sustainable environment and community development.

As part of green audit of campus, we carried out the environment monitoring of campus includes Illumination, Noise level, Ventilation and Indoor Air quality of the classroom. It was observed that illumination and Ventilation is adequate considering natural light and air velocity present. Noise level in the campus well within the limit i.e. below 50 dB at day.



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Professor & Head,

P.G. Department of Environmental Science,  
Govt. Science College (Autonomous),  
Centre of Excellence for Science Education

(Govt. of M.P.)  
**Dr. R.K. Srivastava**  
Professor & Head P.G. Deptt. of Env. Science  
Govt. Science College Jabalpur (M.P.)



**DR. SONALI NIGAM**

Head of the Dept. Botany  
St. Aloysius College, Jabalpur



**DR. RACHNA PANDEY**

Associate Professor, Botany,  
Govt. M. H. College of  
Home Science & Science

For Women (Autonomous) Jabalpur (M.P.)



## Green Audit

**Dr. Mrs. Sonali Nigam**

Head

Department of Botany & Microbiology

DST-FIST Coordinator

(Mob.No.) 91111104979

St. Aloysius' College, (Autonomous) Jabalpur (M.P.)



*Email Id.: nigamsonali@gmail.com*

### Certificate

This is to certify that Green /Environmental Audit of Govt.M.H.College of Home Science and Science for Women, Jabalpur for the session 2020-21 have been conducted and it was found satisfactory.

Dr. Mrs. Sonali Nigam

Head

Dept. of Botany & Microbiology

St. Aloysius College (Auto.)

**HEAD**  
Dept. of Botany & Microbiology  
St. Aloysius College (Auto.)  
Jabalpur (M.P.)



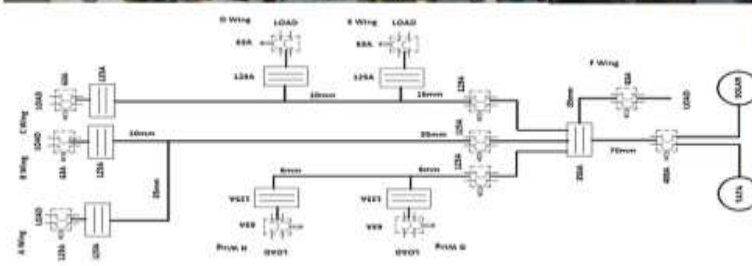
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- Liasoning
- Energy Audit
- Safety Audit
- Electrical Projects
- Solar Projects

Govt. M. H. College of Home Science & Science for Women (Autonomous) Jabalpur.



Report By

M/s. Saur Engineers & Consultants Pvt. Ltd.,  
Mumbai.

- Registered Energy Auditor
- Power Consultant
- Channel Partner-MNRE, Govt. of India.
- Channel Partner-MEDA, Govt. of Maharashtra.
- Solar Grid Engineers, NISE, Govt. of India
- Licensed Electrical Contractor,

Energy, Electrical & safety Audits | Solar and Electric Consultation | Power Management by IOT  
Solar Rooftop EPC | New Electric Connections| Meters (New, Shifting, additional)  
Load Management | Electrical Installation & Maintenance| Permissions, approvals, liasoning

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# Detailed Report

## Energy-Green-Environment Audit

**Audit Period**  
**2022-2024**

Govt. M. H. College of Home Science & Science for Women Jabalpur

Napier Town, Jabalpur  
Madhya Pradesh

## Consultants & Auditor

**SAUR**  
**Engineers & Consultants**  
**Pvt. Ltd.**

REGISTRATION NO. : EA-28

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### **Acknowledgement**

Energy, Green and Environment Audits have been successfully completed by M/s. Saur Engineers & Consultants Pvt. Ltd. Empanelled Energy Auditor(CLASS-A) MEDA, Government of Maharashtra and an ISO 14001:2015 company.

This activity is jointly executed by auditor and beneficiary to account Environmental diversities and development opportunity without sacrificing it's purpose. The main object was to assess the existing system for Environment concerns, High quality, professional and sustainable Environment management, Adopt best practices and Standard operating procedures.

Beneficiary premise is a leading educational service utility in semi-urban area. The college is run as per the norms and standards and having awareness and approach towards Environment saving. The management and staff are keen on saving greenery and energy on every opportunity available.

We sincerely acknowledge efforts of Management and staff members for smooth execution of audit process. We sincerely acknowledge the leaders and guides of the activity who helped to design and supported to the execution of the process

#### **The Team:-**

- Team Head- Dr. Girish Verma
- Principal- Dr. Nandita Sarkar
- Team Member, Teaching- Dr. Abha Tiwari
- Team Member, Teaching- Dr. Anuradha Dave
- Team Member, Non-Teaching- Shri Jagdish Sen
- Team Member, Non-Teaching- Neeraj Bawariya
- Team Member, Student- Rashika Sethi
- Team Member, Student- Anamika Haldkar
- Team Member, Student- Muskan Tantuway
- Team Member, Student- Nidhi Mishra
- Team Member, Electricity- Shri Ramesh Kumar Khare
- Team Member, Plumbing- Shri Mohan Yadav
- Team Member, Gardening- Shri Satya Narayan
- Team Member, Helper- Shri Santosh
- Team Member, External Expert: Shri Salil Shrivastava

**and all other technical, teaching, non-technical staff and students of college.**



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### Certificate

This is to certify that Energy, Green and Environment Audits have been successfully completed by M/s. Saur Engineers & Consultants Pvt. Ltd. Empanelled Energy Auditor(CLASS-A) MEDA, Government of Maharashtra and suggestions for improvements have been given. The Audit activity has been executed for beneficiary with following Details:-

**Name of Beneficiary:** Govt. M.H. College of H. Sc. & Sc. for Women (Auto), Jabalpur

**Registration Number:** 3303

**Address:** Napier Town, Jabalpur, Madhya Pradesh

**Contact Person:** Mr. Binay Singh

**Contact Number:** 07612407326

**Date of Audit:** 15/01/2024

The report is generated from data, information, answer to asked questions, standards and procedures defined by different and concerned authorities time to time, available site condition, weather condition, operational and availability conditions provided by beneficiary on the day of survey. If any changes on above said measures on any other parameters affecting these measures may lead to change, alter, in-corrections even falsifying calculations, results, recommendations and suggestions. The values, figures, amounts mentioned are indicative to the site situation and condition; it may not reflect each and every aspect of it. The report is generated restricted to given scope and available conditions and measures.



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Mumbai - 400 081.

**Sign & Seal**

**Saur Engineers & Consultants Pvt. Ltd.**

**Registration No: EA-28**

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### **1. Introduction**

#### **1.1. Energy Audit**

Energy Audit is a Basic essential activity to be done for saving in electrical billing and also allied with any energy saving projects like renewable energy project and solar projects. Energy Audit is an assessment of usage, consumption and pattern of energy used in the premises based on all above parameters along with conditions and benchmarks as resource and Building Envelope Analysis, working, operational and Maintenance Procedure Analysis, Utility Data Analysis, Load Data Analysis, Analysis of Energy Consumption, Load Evaluation, consumption pattern and billing history, back-up systems and also the administrative requirements, assessment of safety concerns, assessment of operating and occupancy schedules for Equipment, Power Quality and Environmental Parameters Analysis, Efficiency and Wastage Analysis and assessment of potential risk factors.

Energy Audit is a process of systematic identification, quantification, recording, reporting and analysis of energy usage properties of institute. It aims to analyze within and surrounding the place concerned, which will see interrelation with eco-friendly atmosphere. Energy audit is a valuable means for an Institution related to educational area to determine how and where they are connected with Energy conservation drive of nation. Understanding these conditions the institution can make plans for day to day working, future expansions as well as an eco-friendly view of life while making changes and planning for savings. It provides better understanding of impact of energy consumption on working conditions to staff and visitors. As the Energy availability is becoming an increasingly important issue for the nation, the role of higher education institute is more vital and prevalent in relation with the issue.

The rapid urbanization and economic development at local, regional and global level has led to Energy availability and quality crisis. On this background it becomes essential to adopt the system of Energy efficient and safe Campus for the institution which leads for sustainable development and at the same time persisting the quality of the same while travelling on the growth path. Moreover, it is social responsibility of a High energy consuming institution to ensure that they contribute towards the saving of Energy and thus making it available who are destitute in term of energy availability.



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### **1.2. Green Audit**

Green Audit is a process of systematic identification, quantification, recording, reporting and analysis of components of natural diversity properties of institute. It aims to analyse within and surrounding the place concerned, in purview of relationship with natural diversity around. Green audit is a valuable means for an Institution related to educational area to determine how and what natural resources or diversity of nature they are surrounded with or they are living with. Green Audit report includes assessment of premises which refers to nature friendly environment with lesser carbon emission in terms of initiatives, implementation, best practices, working environment, capacity utilization based on all above parameters observed during green audit along with conditions and benchmarks as Air Quality, Water Quality, Noise Data, Weather Data, Tree Diversity, Faunal Diversity as well as biodiversity conditions. Understanding these conditions the institution can make plans for day to day working, future expansions as well as a nature-friendly view of life while making changes and planning for savings.

It can create consciousness and awareness about natural diversities around and helps to standardize practices for working with observation of nature friendly work style. It provides better understanding of green diversity available surrounding conditions to staff and students. As the vanishing diversity of nature is becoming an increasingly important issue for the nation as well as the world, the role of higher education institute is more vital and prevalent in relation with the issue.

The rapid urbanization and economic development at local, regional and global level has led to several greenery and ecological crisis. On this background it becomes essential to adopt the system of Green Campus for the institution which leads for sustainable development and at the same time persisting the quality of the same while travelling on the growth path. The National Assessment & Accreditation Council, New Delhi (NAAC) has made it mandatory to all Higher educational institutions should submit a Green Audit Report. Moreover, it is social responsibility of a Higher educational institution to ensure that they contribute towards the saving of Green areas and maintaining good levels of qualities for natural resources available such as Air, water, atmosphere, flora, faunal, Etc.



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### **1.3. Environment Audit**

Environmental Audit is a process of systematic identification, quantification, recording, reporting and analysis of impact on components of environmental diversity properties of institute. It aims to analyse within and surrounding the place concerned, which will see interrelation with eco-friendly atmosphere. Environmental audit is a valuable means for an Institution related to educational area to determine how and where they are impacting on natural resources or diversity of nature. Environmental audit report includes assessment of premises which refers to impact on environment with carbon emission, wastages in terms of initiatives, implementation, best practices, working environment, capacity utilization based on all above parameters observed during Environmental audit along with conditions and benchmarks as Wastage types, recycling, Greenery, effect of impact, Carbon footprints as well as biodiversity conditions. Understanding these conditions the institution can make plans for day to day working, future expansions as well as an environment-friendly view of life while making changes and planning for savings.

It can create health consciousness, environmental awareness, practice green values and ethics. It provides better understanding of impact on surrounding conditions to staff and students. If self-enquiry is natural and necessary outgrowth of a quality education, it could also be stated that institutional self-enquiry is natural and necessary outgrowth of a quality educational institution. Thus it is imperative that the institution evaluates its own contributions towards a sustainable future. As the pollution and  $CO_2$  is becoming an increasingly important issue for the nation, the role of higher education institute is more vital and prevalent in relation with the issue.

The rapid urbanization and economic development at local, regional and global level has led to several greenery and ecological crisis. On this background it becomes essential to adopt the system of Green Campus for the institution which leads for sustainable development and at the same time persisting the quality of the same while travelling on the growth path. The National Assessment & Accreditation Council, New Delhi (NAAC) has made it mandatory to all Higher educational institutions should submit a Environmental audit Report. Moreover, it is social responsibility of a Higher educational institution to ensure that they contribute towards the saving of environment and reduce level of quantity for impact on natural resources available.



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### 1.4. Objective

The Energy audit of an institution has becoming the paramount important for self-assessment of the Institution which reflects in the role of the institution in mitigation to current problem of reducing Energy availability and quality. The institution has been putting efforts to keep reducing and standardizing energy usage since its inception. Therefore the purpose of present Energy audit is to identification, quantification, recording, reporting and analysis of components of Energy utilization and electrical safety properties of institute framework of energy conservation in compliance with the applicable regulations, policies and standards. The main objectives to carrying out the energy audit are:-

- To have overview of premises
- To record and document Utility data
- To record and document Load profile data
- To record and document basic Electrical Safety observations data
- To record and document Energy Conservations (if any)

The green audit of an institution has becoming the paramount important for self-assessment of the Institution which reflects in the role of the institution in mitigation to current problem of reducing greenery and natural resources depletion. The institution has been putting efforts to keep clean and green atmosphere since its inception. Therefore the purpose of present green audit is to identification, quantification, recording, reporting and analysis of components of natural diversity properties of institute framework of Green atmosphere sustainability. The main objectives to carrying out the green audit are:-

- To record and document Air quality data
- To record and document Water quality data
- To record and document Weather/Meteorology data
- To record and document Noise Level data
- To record and document Tree Diversity data
- To record and document Faunal diversity data

The Environmental audit of an institution has becoming the paramount important for self-assessment of the Institution which reflects in the role of the institution in mitigation to current problem of reducing greenery and natural resources depletion. The institution has been putting efforts to keep clean and green atmosphere since its inception. Therefore the purpose of present Environmental audit is to identification, quantification, recording, reporting and analysis of components of surrounding environmental properties of institute framework as a part of global environment sustainability. The main objectives to carrying out the Environmental audit are:-

- To record and document Wastage type and management
- To record and document Recycling Procedures
- To record and document Impact on environment
- To record and document Carbon footprints



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### **1.5. Methodology**

The purpose of Energy Audit of is to ensure that the practices followed in the campus are in accordance with the Energy Conservation Policy of the Country. The methodology includes: collection of data, physical inspection of the campus, observation and review of the documentation and data analysis.

The report is based on the documents obtained while on site, visual inspection and data collection carried out during the assessment period. All the measurements recorded on site are indicative loads and duties. All readings are collected for analysis and improvement planning. Cost estimates are indicative only as more detailed design and acceptance of suggestions will be required to improve the accuracy of these estimates.

The units are selected from SI (international standards) with meters, Celsius degrees, Etc.

### **1.6. Audit Statement**

The building is adopting the "Energy Efficient Campus" system for Energy conservation and sustainability. There are main three pillars i.e. Energy saving by technology and Operation & Maintenance procedures, safe working on occupational health and performance and 100% inmates demonstrating energy efficiency literacy. The goal is to maintain safe working environment, reduce energy consumption, while creating an atmosphere where inmates can work and live healthy.



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## 2. OVERVIEW

### 2.1. LOCATION



SL No	Head	Details	Remark
1	Name of Institute	Govt. M.H. College of H. Sc. & Sc. for Women (Auto), Jabalpur	
2	Category	Women's College	Educational Institute
3	Address	Napier Town, Jabalpur	
4	State	Madhya Pradesh	
5	Nearest Railway Station	Madan Mahal	Outstation
			Local
6	Nearest Bus Station	ISBT (Deen dayal Chouk, Vijay Nagar, Jabalpur)	Interstate
			Inter state
7	Nearest Airport	Dumna Airport	
8	Longitude	79.92721	
9	Latitude	23.161078	

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### 2.2. Synopsis

SLNo	Head	Details
1	Name of Applicant Institution	Govt. M.H. College of H. Sc. & Sc. for Women (Auto), Jabalpur
3	Address	Napier Town, Jabalpur, Madhya Pradesh
4	Contact Number	076124 07326
5	Registration Certificate Number	3303
6	Sector Type	Government
7	Senior Management Contact	Principal : Dr. Nandita Sarkar
8	Contact Number	9893087424
9	Status of Institution (Pvt./Public)	Government
10	Company Turnover (Rs. In Lakhs)	-
11	Number of Employees	170 (Teaching +Non-teaching)
12	Approximate Floor Area (ft2)	177991.92
13	Year of Establishment	1954
14	Plot Area (ft2)	462171.6
15	Constructed Area (ft2)	177991.92
16	Greenery Area (ft2)	71438.4
17	Roof Area (ft2)	177991.92
18	No of Buildings	27
19	Building Type	Teaching & Research
20	Age of Building	70 years approx.
21	Leakages/Cracks on wall/roof	Cracks on some wall (Under Repair)
22	No. of workers (Footfall)	10
23	No. of Customers (Footfall)	10
24	Day Vs Night activity in %	95 %
25	Shifts per day	One Shift
26	Hours per shift	8 Hours
27	DG Set installed	01
28	Inverter Installed	08
29	Renewable Energy System installed	Yes
30	(Solar/Wind/Biomass/Biofuel/Etc.)	Solar Panels

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### 2.3. Layouts





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### 2.4. About Premises

Govt. M. H. College of Home Science & Science for Women (Autonomous) Jabalpur is a NAAC (B+) Graded. The college has also adopted the 'Green Campus' system for environmental conservation and sustainability. There are main three pillars i.e. zero environmental foot print, positive impact on occupant health and performance and 100% graduates demonstrating environmental literacy. The goal is to reduce CO2 emission, energy and water use. while creating an atmosphere where students can learn and be healthy. The 'Green Campus' has been active since years both as an assembly group of sub committees that actively promote the various projects. The college administration works on the several facets of \*Green Campus' including Water Conservation. Tree Plantation. Waste Management. Paperless Work. Alternative Energy and Mapping of Biodiversity.

Infrastructure (Class rooms, Library, Laboratories, Computer rooms, Gyms, Recreation rooms, seminar halls, Etc. Two Photos each and 2-4 lines description about facility and utilization) (PLEASE NOTE THAT THIS PART WILL REMAIN COMMON HENCE PROVIDE DETAILS LASTING FOR TWO YEARS; IF ANY CHANGES MADE IN TWO YEARS THEN MENTION SUCH CHANGE For Example if team member left the college then make two lists for first year and second year, if any changes in infrastructure then mention with photos)

The college curriculum is designed keeping in mind the vision and mission of the institution. It provides flexibility at UG and PG levels offering various course combinations which is supported by experienced teaching faculty, conducive environment of the institution and strong physical and academic infrastructure. It has adequate physical infrastructural facilities with sufficient classrooms laboratories, seminar halls, auditorium, library, Reading rooms, E-library, playgrounds, food court, gym, parking area and hostels to support the academic activity in the campus.

The Institution has state-of-the-art infrastructure and facilities in accordance with the need of the teaching and learning of existing courses and implementation of NEP 2020.

The facilities that promote a good teaching-learning ambience are:

- 10.75 acre (land)
- 4 Hostel blocks, accommodating—about 700 Students
- 2 Ramps and 2- Lifts
- Round the clock security provided
- ICT enabled 8 Seminar Halls with ICT and LED Display Digital Boards
- ERP System, Server room, etc.
- Well lit & ventilated 49 class rooms
- 24 Laboratories
- Autonomous examination cell equipped with web enabled integrated software & online power backup system.
- 5 computer Labs
- 208 systems with printers and scanners to facilitate teaching and learning.
- 620 Mbps broadband connectivity
- 1 Generator with a total capacity of 25 KVA.
- 3 Cottages
- Sports complex for indoor and outdoor games, such as basketball, badminton court & Volley.
- ball ground, gymnasium, Sports ground with pavilion, Gym.

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- Gandhi Kuti
- Swami Vivekananda Statue
- MahatmaGandhi Statue
- Museum (Zoology)
- Archive
- 4 Well maintained garden (Medicinal Plants)
- Telephone booth for hostel students, Pure drinking water facility one on each floor. Public address system & CCTV camera and Canteen
- Stationary Shop
- Juice corner
- Crèche
- 3 Cyclestands
- Common rooms
- Green Room
- Counseling Center
- Bungalows-Principal-1,Warden-3,non-teaching staff-2
- A Recording studio that supplements the needs of the faculty for thee-content development.
- A herbal garden
- Two blocks have ramps for differently-abled students and staff, with 2 lifts in the main block.
- 14 systems equipped with internet facility for free browsing facility to students in the e-Library.
- 12 departments are maintaining departmental PG/Research libraries. The main Library is situated in an area of 6348.24sq.ft
- 13 Class rooms with LCD projector.
- 1 Audio-Visual Hall (Auditorium) with projector.
- 1 Virtual Classroom.
- 3 Classroom with Lecture capturing system.



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### 2.5 Documentation:

ITEM	YES/NO
<b>a. Existing Statutory Layouts</b>	
i. Plot Map / Sketch	YES
ii. Building / Floor Map (For Each Floor)	YES
iii. Roof Terrace Map	YES
iv. Electrical SLD	NO
v. Details Electrical Control Panels	NO
vi. Details of Transformer installed if any	NO
vii. Details of Generator (DG-Set) installed if any	NO
viii. Details of UPS installed if any	NO
ix. Details of Renewable systems installed if any	YES
x. Utility Bills (Electricity, Gas, Water, Diesel, Etc.) for 12 months	YES
xi. Registers of Records	NO
xii. Time Tables	YES
xiii. Nameplate Data	NO
xiv. Manuals	NO
b. Existing safety measures (Fire extinguishers, Safety training and posters)	YES
c. Verification of circulars, Records of Preventive measurements	NO
d. Verification of Behavioural SOP	NO
e. Verification of O & M SOP	NO
f. Checking Provision for electric shock response and treatment	NO
g. Checking Log of Electrical works/accidents	NO
h. Checking Provision of Danger Sign Boards	YES
i. Checking Workmen involved in electric work	NO
j. Checking Provision and Height of work	YES
k. Checking availability of First Aid	YES

Energy, Electrical & safety Audits | Solar and Electric Consultation | Power Management by IOT  
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### 3. Energy Audit

#### 3.1. Electricity and Fuel Consumption Analysis

SL No.	Particulars	Unit	VALUES
1	Supply Type	LT/HT	HT
2	Utility Company	DISCOM	MPPKVCL
3	Consumer Number	NO	111262832000
4	Meter Number	NO	XG476948
5	Feeder	SOURCE	11KV WRIGHT TOWN
6	Tariff	TYPE	HV3.2A
7	Sanctioned Load	KW	0
8	Connected Load	KW	0
9	Contract Demand	KVA	175
10	RMD (Year)	KVA	75

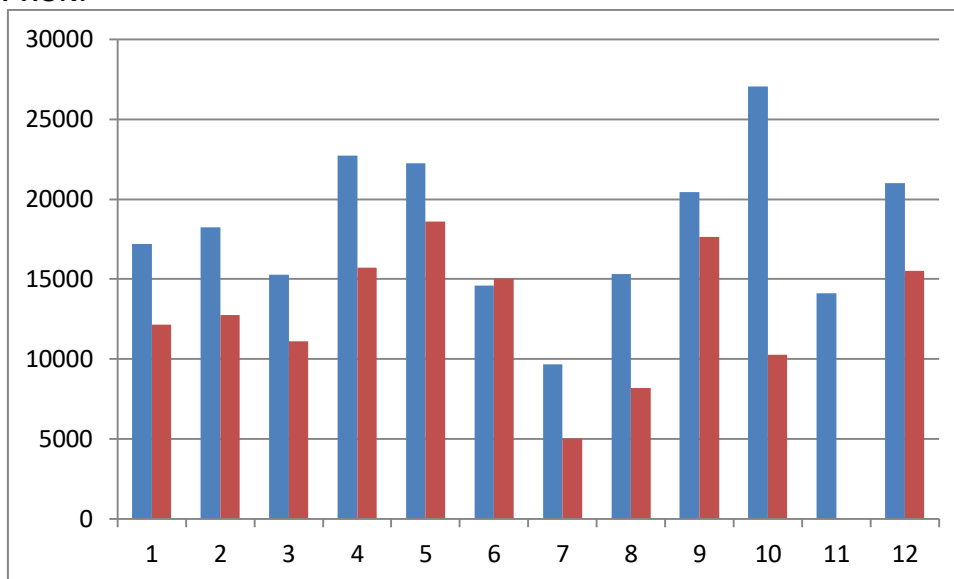
PERIOD	2023		2022		DIFFERENCE	
Month	Consumption	Expenses	Consumption	Expenses	Consumption	Change
(NAME)	(KVAH)	(Rs)	(KVAH)	(Rs)	(KVAH)	(%)
January	17213	184096	12157	128083	5056	29.37
February	18238	190088	12750	128830	5488	30.09
March	15272	158773	11111	126310	4161	27.25
April	22709	233292	15715	185885	6994	30.80
May	22262	240644	18582	208820	3680	16.53
June	14609	164470	15027	182212	-418	-2.86
July	9683	125063	5016	97663	4667	48.20
August	15329	175855	8202	126096	7127	46.49
September	20461	218201	17622	209858	2839	13.88
October	27031	275939	10264	326543	16767	62.03
November	14116	162114			14116	100.00
December	21011	231293	15504	188337	5507	26.21



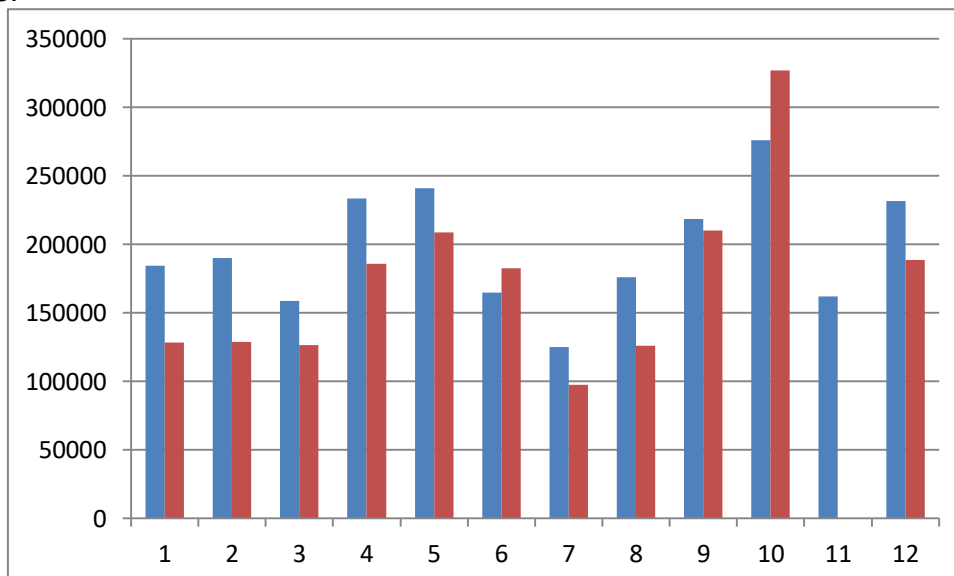
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### CONSUMPTION:



### EXPENSES:



### Note:

1. Consumption is increased Drastcally at average of 35.67%
2. Recommended to confirm with increase in activity.
3. Recommended to perform Detailed Energy and Power Audit.



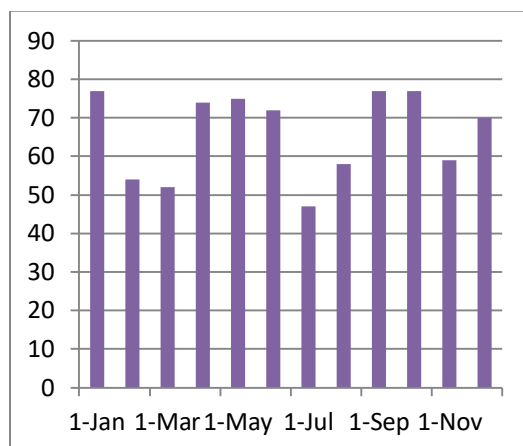
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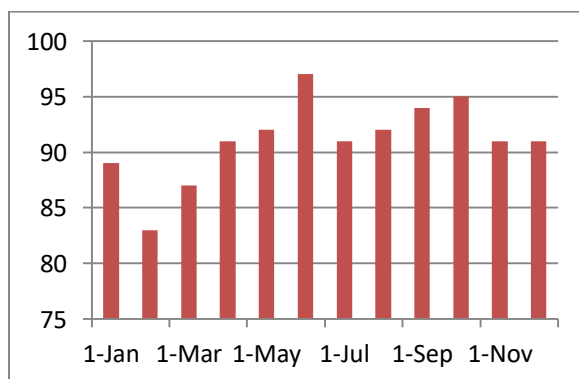
### Demand in Current year:

Month	RMD	PF
(NAME)	(KVA)	(%)
23-Jan	77	89
23-Feb	54	83
23-Mar	52	87
23-Apr	74	91
23-May	75	92
23-Jun	72	97
23-Jul	47	91
23-Aug	58	92
23-Sep	77	94
23-Oct	77	95
23-Nov	59	91
23-Dec	70	91

### RMD:



### PF:





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Other Energy Sources					
SL No	Energy/Fuel	Applicable	Unit	Use per Annum	Cost Per Annum (Rs)
1	Coal		NA		
3	Lignite		NA		
4	Fuel wood & Biomass		NA		
5	High Speed Diesel		NA		
6	Light Diesel		NA		
7	LSHS		NA		
8	LPG		NA		
9	Natural Gas	<ul style="list-style-type: none"> <li>• PNG</li> <li>• LNG</li> <li>• CNG</li> </ul>	NA		
10	Renewable Power		NA		
11	Captive (DG Set)		NA		

### 3.2. Consumption pattern

UNITS			
HEAD	Usage (Kwh)	Payment (Rs)	Duration
Total	217934	2359828	Annual
Min	9683	125063	JULY
Max	27031	275939	OCT
Average	18161.17	196652.3	Annual

RMD		
HEAD	VALUE	DURATION
MIN	47	JUL
MAX	77	SEP

POWER FACTOR		
HEAD	VALUE	DURATION
MIN	83	FEB
MAX	97	JUL
AVG	91.1	ANNUAL



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### 3.3. Future Expenses Projection on Electricity Bills for Next 20 Years

It is observed past 15 years that electricity rates are increasing with an average growth of 5% per annum. Following table will show how much amount we are going to spend on electricity next twenty years with this growth rate and same consumption.

SL No	Year	Unit Rate	Expenses
1	2023-2024	8.39	2488274
2	2024-2025	8.81	2579706
3	2025-2026	9.25	2675711
4	2026-2027	9.71	2776515
5	2027-2028	10.20	2882361
6	2028-2029	10.71	2993499
7	2029-2030	11.24	3110195
8	2030-2031	11.81	3232726
9	2031-2032	12.40	3361385
10	2032-2033	13.02	3496476
11	2033-2034	13.67	3638324
12	2034-2035	14.35	3787264
13	2035-2036	15.07	3943652
14	2036-2037	15.82	4107860
15	2037-2038	16.61	4280279
16	2038-2039	17.44	4461320
17	2039-2040	18.31	4651414
18	2040-2041	19.23	4851013
19	2041-2042	20.19	5060594
20	2042-2043	21.20	5280654

You are going to spend **Rs. 7,00,00,000/- (Rs. Seven Crores Only)** on electricity bills in coming 20 years; if we keep current consumption as it is.



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### 3.4. Load Profile

#### 3.4.1. 2022-23 Load Establishment

BRIEF DESCRIPTION OF EACH UTILITY EXISTING SYSTEM-2022-23					
S.N.	LOCATION	FIXTURE	WATT	QTY	TOTAL
1	Hostel Block - C Office	Led Tube Light	20	3	60
		Fan	70	2	140
		BLDC Fan	30	4	120
		Computer	120	2	240
		Printer	150	2	300
		PC Machine	450	1	450
		18W CFL	18	3	54
		Led Bulb 9W	9	1	9
		FTL	46	2	92
		Led TV	100	1	100
2	Passage	Led Tube Light	20	1	20
		Led Bulb 9W	9	1	9
3	Ground Floor - Open Area	Led Tube light	20	1	20
		Led Bulb 9W	9	1	9
		Fan	70	1	70
4	Passage	Led Tube light	20	6	120
		Led Bulb 9W	9	10	90
5	Ground Floor Rooms	FTL	46	26	1196
		Fan	70	13	910
6	Wash Rooms	FTL	46	3	138
		Led Tube Light	20	3	60
		Exhaust	60	3	180
		Geyser	1500	3	4500
7	Halls	FTL	46	32	1472
		Fan	70	12	840
		Cooler	250	2	500
8	First Floor Rooms	FTL	46	38	1748
		Fan	70	19	1330
9	Wash Rooms	FTL	46	3	138
		Led Tube light	20	3	60
		Exhaust	60	3	180
		Geyser	1500	3	4500
10	Passage Area	Led Bulb 9W	9	10	90
		Led Tube Light	20	6	120
11	Second Floor Room	FTL	46	38	1748

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		Fan	70	15	1050
		BLDC Fan	30	4	120
		FTL	46	3	138
12	Wash Rooms	Led Tube Light	20	3	60
		Exhaust	60	3	180
		Geyser	1500	3	4500
13	Passage Area	Led Bulb 9W	9	10	90
		Led Tube Light	20	6	120
14	Submersible	Motor 10 HP	7500	1	7500
15	Hostel Block B - Kitchen	FTL	46	1	46
		Fan	70	1	70
		Led Tube Light	20	1	20
16	Dinning Hall - Ground Floor	FTL	46	9	414
		Fan	70	5	350
17	Ground Floor Rooms	FTL	46	24	1104
		Fan	70	24	1680
18	First Floor Rooms	FTL	46	27	1242
		Fan	70	27	1890
19	Second Floor Room	FTL	46	27	1242
		Fan	70	27	1890
20	Hostel Block A - Ground Floor Rooms	Led Tube Light	20	87	1740
		Fan	70	87	6090
21	Wash Rooms	Led Tube Light	20	4	80
		FTL	46	4	184
		Geyser	1500	4	6000
		Exhaust	60	4	240
22	First Floor Rooms	Led Tube Light	20	87	1740
		Fan	70	87	6090
23	Wash Rooms	Led Tube Light	20	4	80
		FTL	46	4	184
		Geyser	1500	4	6000
		Exhaust	60	4	240
24	Second Floor Rooms	Led Tube Light	20	78	1560
		Fan	70	78	5460
		Water Cooler	500	1	500
25	Wash Rooms	Led Tube Light	20	4	80
		FTL	46	4	184
		Geyser	1500	4	6000
		Exhaust	60	4	240
26	Dinning Hall	Old Fan	150	9	1350

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		BLDC Fan	30	4	120
		Led Bulb 9W	9	14	126
		Cooler	250	1	250
		Exhaust	60	2	120
		Fridge	250	1	250
		Fan	70	1	70
		Led TV	100	1	100
		Water Cooler	500	1	500
		Deep Freezer	650	2	1300
27	Roti Making Room	Led Tube Light	20	2	40
		Exhaust	60	1	60
28	Hostel Block D	Water Cooler	500	1	500
29	Ground Floor Room	Led Tube light	20	8	160
		Fan	70	8	560
30	Wash Room	FTL	46	1	46
		Led Tube light	20	1	20
		Geyser	1500	1	1500
31	Passage	Led Bulb 9W	9	10	90
32	First Floor Room	Led Tube Light	20	10	200
		Fan	70	10	700
33	Wash Room	FTL	46	1	46
		Led Tube light	20	1	20
		Geyser	1500	1	1500
34	Passage	Led Bulb 9W	9	12	108
35	Second Floor Room	Led Tube Light	20	10	200
		Fan	70	10	700
36	Passage	Led Bulb 9W	9	12	108
37	Wash Room	FTL	46	1	46
		Led Tube Light	20	1	20
		Geyser	1500	1	1500
38	Submersible	Motor 7.5 HP	5625	1	5625
39	Dept. Of Human Development	Cooler	250	1	250
		Fan	70	8	560
		FTL	46	4	184
		Led Tube light	20	5	100
		Projector	250	1	250
40	Dept. of Resource Management	Led Tube light	20	13	260
		Fan	70	8	560
		Printer	150	2	300
		Computer	120	2	240

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		Fridge	250	1	250
		PC Machine	450	1	450
		Cooler	250	1	250
41	warden House	Fan	70	2	140
		Led Tube Light	20	4	80
		Cooler	250	1	250
		Led Tv	100	1	100
		Fridge	250	1	250
42	Principal Bunglow	Cooler	250	2	500
		Motor HP	750	1	750
		Led Tube Light	20	6	120
		Fan	70	6	420
		Fridge	250	1	250
		Led Tv	100	1	100
43	Panel Room Near Transformers	FTL	46	8	368
		Fan	70	4	280
		Cooler	250	2	500
		Exhaust	60	1	60
44	Canteen Area - STD	Fridge	250	1	250
		Fan	70	1	70
		Led Bulb 9W	9	1	9
45	Canteen	Led Tube Light	20	12	240
		Fan	70	9	630
		Hot Case	1500	1	1500
		Deep Freezer	650	2	1300
		Fridge	250	1	250
		Exhaust	60	2	120
		Mixer	150	1	150
		Microwave	1500	1	1500
		Induction	2000	2	4000
46	Shops	Lep Tube Light	20	2	40
		Fridge	250	1	250
		PC Machine	450	1	450
		Fan	70	2	140
<b>Ground Floor</b>					
47	College Building office	Led Bulb 15W	15	7	105
		Fan	70	5	350
		Led Tube Light	20	5	100
		Old Fan	150	5	750
		Computer	120	3	360

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		Printer	150	3	450
		PC Machine	450	2	900
		FTL	46	9	414
		Exhaust	60	2	120
		Cooler	250	2	500
48	Principal Chamber	Led Tube Light	20	10	200
		AC 1.ST	1857	1	1857
		Fan	70	5	350
		Led TV	100	2	200
		Computer	120	1	120
		Cooler	250	1	250
49	Passage Area	Led Bulb 15W	15	6	90
50	Server Room	AC 1.ST	1857	1	1857
		Fan	70	1	70
		CFL18WX2 Nos.	44	4	176
		Led Tube light	20	1	20
		Printer	150	1	150
		Computer	120	2	240
51	library	FTL	46	40	1840
		Fan	70	4	280
		Old Fan	150	12	1800
		Computer	120	6	720
		Printer	150	2	300
		PC Machine	450	1	450
52	Open Area	lift Machine	3750	1	3750
		Water Cooler	500	1	500
53	Reading Room	Old Fan	150	4	600
		FTL	46	20	920
54	Auditorium Hall	FTL	46	82	3772
		Led Tube light	20	14	280
		Old Fan	150	14	2100
I		Fan	70	5	350
55	Passage	Led Bulb 1SW	15	7	105
56	Chemistry Lab 1	Old Fan	150	5	750
		Fan	70	1	70
		FTL	46	54	2484
		Exhaust	60	3	180
		Led Tube Light	20	3	60
		Hot Air Oven	1500	1	1500

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		Centrifuge	120	1	120
57	Chemsitry HOD Room	Old Fan	150	1	150
		FTL	46	2	92
		Microwave	1500	1	1500
		Cooler	250	1	250
58	Staff Room	FTL	46	2	92
		Fan	70	1	70
		Computer	120	1	120
		Printer	150	1	150
59	Chemistry Lab 2	Old Fan	150	4	600
		Led Tube Light	20	6	120
		Led Bulb 9W	9	2	18
		Exhaust	60	2	120
		Hot Air Oven	1500	1	1500
60	Instrumentat ion Lab	FTL	46	6	276
		Fan	70	1	70
		Exhaust	60	1	60
61	Store	Led Tube Light	20	6	120
		Fan	70	2	140
		Old Fan	150	1	150
62	Biochemistry Lab	Led Tube Light	20	6	120
		Old Fan	150	5	750
		Hot Air Oven	1500	1	1500
		Incubator	1500	1	1500
		FTL	46	1	46
		Fan	70	2	140
		Exhaust	60	2	120
		Computer	120	2	240
		Printer	150	1	150
63	Chemistry Lab 3	Led Tube Light	20	7	140
		Fan	70	5	350
64	Dept of Biochemistry & Chemsitry Staff	Led Tube Light	20	6	120
		Old Fan	150	1	150
		Fridge	250	1	250
65	Passage	Led Bulb 9W	9	5	45
66	Room No. 113 Smart Class-1	Led Tube Light	20	28	560
		Interactive Board	250	1	250
		Old Fan	150	6	900

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Load Management | Electrical Installation & Maintenance| Permissions, approvals, liasoning

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		Fan	70	1	70
67	Chemistry Research Lab	Led Tube Light	20	4	80
		Old Fan	150	1	150
		Fan	70	1	70
		Digital Calorimeter	200	1	200
		Hot Air Oven	1500	1	1500
		Centrifuge	120	1	120
68	Chemistry Lab 5	FTL	46	5	230
		Led Tube Light	20	4	80
		Old Fan	150	4	600
		Microwave	1500	1	1500
		Hot Air Oven	1500	1	1500
		Exhaust	60	2	120
69	Virtual Class	Fan	70	6	420
		FTL	46	6	276
		Led TV	100	1	100
70	Chemistry Instrumentation Lab	FTL	46	12	552
		Fan	70	4	280
		Fridge	250	2	500
71	Room	FTL	46	12	552
		Fan	70	4	280
	Outdoor	Motor 2HP	1500	1	1500
72	Room No. 130,131	FTL	46	14	644
		Fan	70	12	840
		Exhaust	60	4	240
73	Room No. 127,126	FTL	46	14	644
		Fan	70	12	840
		Exhaust	60	4	240
		Fridge	250	1	250
74	Room No. 128,129	FTL	46	1	46
		Fan	70	1	70
75	Quarter - College	FTL	46	4	184
		Fan	70	2	140
		Cooler	250	1	250
		Fridge	250	1	250
		Led TV	100	2	200
76	Cottage - 2Nos.	FTL	46	12	552
		Fan	70	6	420
		Geyser	1500	2	3000

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		Cooler	250	2	500
		Fridge	250	2	500
		Computer	120	2	240
		Led TV	100	2	200
77	Seminar Hall - Ground Floor	Led 2X2 Light	40	46	1840
		Fan	70	48	3360
78	Out door	Motor 2 HP	1500	1	1500
79	Generator Room	FTL	46	1	46
		Fan	70	1	70
80	Gymnasium Sports	Fan	70	2	140
		FTL	46	2	92
		Led Tube Light	20	2	40
81	Passage	Led Tube Light	20	9	180
82	Room No. 125 Nutrition Lab 1	Fan	70	6	420
		Led Tube Light	20	4	80
		FTL	46	5	230
		Exhaust	60	2	120
		Fridge	250	1	250
		Microwave	1500	5	7500
		Hot Air Oven	1500	1	1500
		Incubator	1500	1	1500
		Cooler	250	1	250
83	CPE Room	Led Tube Light	20	1	20
		FTL	46	3	138
		Fan	70	3	210
		Printer	150	2	300
		Computer	120	2	240
		PC Machine	450	1	450
		Exhaust	60	1	60
		Projector	250	1	250
		Fridge	250	1	250
84	Room No. 118 Smart Class -2	Led Tube Light	20	18	360
		Old Fan	150	7	1050
		Printer	150	1	150
85	CPE	FTL	46	2	92
		Fan	70	2	140
86	Chemistry Lab -4	Old Fan	150	5	750
		Led Tube Light	20	6	120
		Exhaust	60	2	120
		Incubator	1500	1	1500

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		Hot Air Oven	1500	1	1500
87	Room 121A	Projector	250	1	250
		FTL	46	2	92
		Fan	70	1	70
<b>First Floor</b>					
88	First Floor - Room No. 230 to 232	FTL	46	36	1656
		Fan	70	12	840
89	Clothing and Textile Department	Led Tube Light	20	17	340
		Fan	70	12	840
		Old Fan	150	13	1950
		Hot Air Oven	1500	1	1500
		FTL	46	8	368
		Fridge	250	1	250
		PC Machine	450	1	450
		Computer	120	1	120
		Printer	150	1	150
90	Passage Area	Led Bulb 9W	9	5	45
91	Room No. 218	Old Fan	150	4	600
		Fan	70	1	70
		FTL	46	4	184
92	Room No. 221 Smart Class -3	Led Tube Light	20	6	120
		Old Fan	150	7	1050
		FTL	46	16	736
		Projector	250	1	250
93	Dept of Maths	Fan	70	8	560
		Led Tube Light	20	18	360
		FTL	46	9	414
		Cooler	250	2	500
		Exhaust	60	2	120
		Wall Fan	60	7	420
		Computer	120	2	240
		Printer	150	2	300
94	Class Room MSC	FTL	46	4	184
		Fan	70	4	280
		Projector	250	1	250
95	MSC I& II	FTL	46	2	92
		Fan	70	2	140
96	Passage	FTL	46	5	230
97	Wash Room	FTL	46	2	92

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		Exhaust	60	1	60
98	Open Area	Water Cooler	500	1	500
99	Class Rooms	Fan	70	36	2520
		FTL	46	60	2760
100	Lift Area	Lift Machine	3750	1	3750
101	Room 228 & 227	FTL	46	12	552
		Fan	70	18	1260
102	Sports Room	FTL	46	12	552
		Led Tube Light	20	2	40
		Projector	250	1	250
		70W SV Lamp	90	10	900
		Exhaust	60	2	120
		Wall Fan	60	5	300
		Fan	70	1	70
		Computer	120	1	120
		Printer	150	1	150
103	Room No. 215	Fan	70	2	140
		FTL	46	4	184
104	Passage	Led Bulb 15W	15	4	60
105	Physics Lab-2	Old Fan	150	5	750
		Fan	70	3	210
		FTL	46	8	368
106	Physics Lab-3	FTL	46	8	368
		Led Tube Light	20	1	20
		Old Fan	150	9	1350
		Fan	70	3	210
		60W Bulb	60	1	60
		Spectrophotometer	180	3	540
107	Physics Lab-4	FTL	46	8	368
		Led Tube Light	20	1	20
		Old Fan	150	9	1350
		Fan	70	3	210
		60W Bulb	60	1	60
		Spectrophotometer	180	3	540
108	Room 210 - Physics Lab	FTL	46	6	276
		Wall Fan	60	7	420
		Computer	120	1	120
		Printer	150	1	150

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		Water Cooler	500	1	500
108	Room No.209 Dept of Physics	FTL	46	4	184
		Old Fan	150	2	300
		Computer	120	1	120
		Printer	150	1	150
109	Physics Lab -1	Old Fan	150	6	900
		FTL	46	8	368
		Fan	70	3	210
110	Examination Cell	FTL	46	22	1012
		Fan	70	10	700
		Wall Fan	60	2	120
		Old Fan	150	3	450
		Computer	120	7	840
		Printer	150	3	450
		Cooler	250	1	250
		Led Tube Light	20	2	40
		PC Machine	450	5	2250
		AC IT	1300	2	2600
111	Conference Room	AC I.5T	1857	2	3714
		Interactive Board	250	1	250
		FTL	46	8	368
		Fan	70	4	280
112	Room No.204,Computer Lab UGC	Cooler	250	4	1000
		Computer	120	25	3000
		Old Fan	150	4	600
		Fan	70	1	70
		Led Tube Light	20	5	100
		Projector	250	1	250
113	Room No. 205	Computer	120	42	5040
		Printer	150	6	900
		Old Fan	150	6	900
		Fan	70	5	350
		AC 1.5T	1857	2	3714
		Led Tube Light	20	26	520
114	Room No.203,202,201	Old Fan	150	12	1800
		Fan	70	3	210
		Computer	120	6	720
		Printer	150	3	450

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		Led Tube Light	20	30	600
		Interactive Board	250	3	750
115	Passage	Led Bulb 9W	9	5	45
116	Common Room	Fan	70	3	210
		FTL	46	4	184
117	Seminar Hall - First Floor	Led 2X2 Light	40	46	1840
		Fan	70	48	3360
118	Toilet	FTL	46	2	92
		Exhaust	60	1	60
<b>Second Floor</b>					
119	Second Floor - Common Room	FTL	46	3	138
		Fan	70	4	280
120	Room No. 301to 304	Led 2X2 Light	40	24	960
		Fan	70	16	1120
121	Room No. 305 and 306	Led 2X2 Light	40	12	480
		Fan	70	8	560
		Projector	250	2	500
122	Passage	Led Bulb 9W	9	16	144
123	Room No. 308 & 307 Computer Lab	Led 2X2 Light	40	11	440
		Fan	70	7	490
		Projector	250	1	250
		Computer	120	22	2640
		PC Machine	450	2	900
		Cooler	250	2	500
		AC .5T	1857	1	1857
124	Room No. 309 dept of Language	Led 2X2 Light	40	2	80
		Fan	70	2	140
125	Room No.310	Fan	70	8	560
		Led 2X2 Light	40	10	400
		Interactive Board	250	1	250
126	Room No.311Botany Lab	Fan	70	6	420
		Led 2X2 Light	40	8	320
		Wall Fan	60	2	120
127	Room No.312	Led 2X2 Light	40	6	240
		Fan	70	4	280
		Wall Fan	60	2	120
128	Room No.313,314,315	Led 2X2 Light	40	18	720

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		Fan	70	12	840
129	Digital Zoology	Led Tube Light	20	7	140
		Fan	70	6	420
130	Microbiology Lab	FTL	46	11	506
		Fan	70	8	560
		Exhaust	60	2	120
		Laminar Air Flow	200	1	200
		Hot Air Oven	1500	1	1500
		Incubator	1500	1	1500
		Fridge	250	2	500
		Computer	120	1	120
		Printer	150	1	150
131	Class Zoology	FTL	46	2	92
		Fan	70	4	280
		Incubator	1500	1	1500
		Hot Air Oven	1500	1	1500
		Fridge	250	1	250
		Exhaust	60	1	60
132	Biotechnology Lab	Fan	70	12	840
		FTL	46	12	552
		Incubator	1500	2	3000
		Hot Air Oven	1500	2	3000
		Fridge	250	1	250
		Exhaust	60	2	120
		Cooler	250	1	250
133	Botany & Microbiology Lab	Fan	70	3	210
		FTL	46	3	138
		Fridge	250	1	250
		Laminar Air Flow	200	1	200
		Hot Air Oven	1500	1	1500
		Incubator	1500	1	1500
134	Microbiology Lab-2	Fan	70	7	490
		FTL	46	3	138
		Cooler	250	1	250
		Incubator	1500	1	1500
		Distillation Plant	300	1	300
135	Class Room 331	Fan	70	9	630
		FTL	46	6	276

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136	Lab-2	FTL	46	8	368
		Fan	70	12	840
		Incubator	1500	1	1500
		Hot Air Oven	1500	1	1500
		Centrifuge	120	1	120
137	Room No.317 Zoology & Biochemistry	Led 2X2 Light	40	6	240
		Fan	70	4	280
		Computer	120	2	240
		PC Machine	450	1	450
		Printer	150	1	150
		Fridge	250	1	250
138	Room No.318	Led 2X2 Light	40	6	240
		Fan	70	4	280
		Wall Fan	60	1	60
		Computer	120	1	120
		Printer	150	1	150
		Microwave	1500	1	1500
		Fridge	250	1	250
139	Botany Lab-2	Led 2X2 light	40	6	240
		Fan	70	4	280
		Wall Fan	60	1	60
140	Museum	Fan	70	1	70
		FTL	46	1	46
141	Room No. 333	Fan	70	6	420
		FTL	46	9	414
142	Room No.334	Fan	70	4	280
		FTL	46	12	552
143	Room No.335	Fan	70	4	280
		FTL	46	12	552
144	Seminar Hall	Led 2X2 Light	40	46	1840
		Fan	70	48	3360
145	New Building Opposite Chemistry Dept	Led 2X2 light	40	33	1320
		Fan	70	36	2520
146	Out door	Led Street Light	30	36	1080
147	New Building Opposite Physics Lab	Led Tube light	40	24	360
		Fan 12	50	12	600

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148	New Building Opposite Conference Room	Led Tube light	40	12	480
		Fan 12	50	12	600
		<b>Total</b>		<b>3724</b>	<b>362629</b>

### 3.4.2. 2023 -24 Load Establishment

BRIEF DESCRIPTION OF EACH UTILITY EXISTING SYSTEM-2023-24					
S.N.	LOCATION	FIXTURE	WATT	QTY	TOTAL
1	Hostel Block - C Office	Led Tube Light	20	3	60
		Fan	70	6	420
		Computer	120	2	240
		Printer	150	2	300
		PC Machine	450	1	450
		18W CFL	18	3	54
		Led Bulb 9W	9	1	9
		FTL	46	2	92
		Led TV	100	1	100
2	Passage	Led Tube Light	20	1	20
		Led Bulb 9W	9	1	9
3	Ground Floor - Open Area	Led Tube light	20	1	20
		Led Bulb 9W	9	1	9
		Fan	70	1	70
4	Passage	Led Tube light	20	6	120
		Led Bulb 9W	9	10	90
5	Ground Floor Rooms	FTL	46	26	1196
		Fan	70	13	910
6	Wash Rooms	FTL	46	3	138
		Led Tube Light	20	3	60
		Exhaust	60	3	180
		Geyser	1500	3	4500
7	Halls	FTL	46	32	1472
		Fan	70	12	840
		Cooler	250	2	500
8	First Floor Rooms	FTL	46	38	1748
		Fan	70	19	1330
9	Wash Rooms	FTL	46	3	138
		Led Tube light	20	3	60
		Exhaust	60	3	180
		Geyser	1500	3	4500
10	Passage Area	Led Bulb 9W	9	10	90

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		Led Tube Light	20	6	120
11	Second Floor Room	FTL	46	38	1748
		Fan	70	19	1330
		FTL	46	3	138
12	Wash Rooms	Led Tube Light	20	3	60
		Exhaust	60	3	180
		Geyser	1500	3	4500
13	Passage Area	Led Bulb 9W	9	10	90
		Led Tube Light	20	6	120
14	Submersible	Motor 10 HP	7500	1	7500
15	Hostel Block B - Kitchen	FTL	46	1	46
		Fan	70	1	70
		Led Tube Light	20	1	20
16	Dinning Hall - Ground Floor	FTL	46	9	414
		Fan	70	5	350
17	Ground Floor Rooms	FTL	46	24	1104
		Fan	70	24	1680
18	First Floor Rooms	FTL	46	27	1242
		Fan	70	27	1890
19	Second Floor Room	FTL	46	27	1242
		Fan	70	27	1890
20	Hostel Block A - Ground Floor Rooms	Led Tube Light	20	87	1740
		Fan	70	87	6090
21	Wash Rooms	Led Tube Light	20	4	80
		FTL	46	4	184
		Geyser	1500	4	6000
		Exhaust	60	4	240
22	First Floor Rooms	Led Tube Light	20	87	1740
		Fan	70	87	6090
23	Wash Rooms	Led Tube Light	20	4	80
		FTL	46	4	184
		Geyser	1500	4	6000
		Exhaust	60	4	240
24	Second Floor Rooms	Led Tube Light	20	78	1560
		Fan	70	78	5460
		Water Cooler	500	1	500
25	Wash Rooms	Led Tube Light	20	4	80
		FTL	46	4	184
		Geyser	1500	4	6000
		Exhaust	60	4	240

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26	Dinning Hall	Old Fan	150	13	1950
		Led Bulb 9W	9	14	126
		Cooler	250	1	250
		Exhaust	60	2	120
		Fridge	250	1	250
		Fan	70	1	70
		Led TV	100	1	100
		Water Cooler	500	1	500
		Deep Freezer	650	2	1300
27	Roti Making Room	Led Tube Light	20	2	40
		Exhaust	60	1	60
28	Hostel Block D	Water Cooler	500	1	500
29	Ground Floor Room	Led Tube light	20	8	160
		Fan	70	8	560
30	Wash Room	FTL	46	1	46
		Led Tube light	20	1	20
		Geyser	1500	1	1500
31	Passage	Led Bulb 9W	9	10	90
32	First Floor Room	Led Tube Light	20	10	200
		Fan	70	10	700
33	Wash Room	FTL	46	1	46
		Led Tube light	20	1	20
		Geyser	1500	1	1500
34	Passage	Led Bulb 9W	9	12	108
35	Second Floor Room	Led Tube Light	20	10	200
		Fan	70	10	700
36	Passage	Led Bulb 9W	9	12	108
37	Wash Room	FTL	46	1	46
		Led Tube Light	20	1	20
		Geyser	1500	1	1500
38	Submersible	Motor 7.5 HP	5625	1	5625
39	Dept. Of Human Development	Cooler	250	1	250
		Fan	70	8	560
		FTL	46	4	184
		Led Tube light	20	5	100
		Projector	250	1	250
40	Dept. of Resource Management	Led Tube light	20	13	260
		Fan	70	8	560
		Printer	150	2	300
		Computer	120	2	240

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		Fridge	250	1	250
		PC Machine	450	1	450
		Cooler	250	1	250
41	warden House	Fan	70	2	140
		Led Tube Light	20	4	80
		Cooler	250	1	250
		Led Tv	100	1	100
		Fridge	250	1	250
42	Principal Bunglow	Cooler	250	2	500
		Motor HP	750	1	750
		Led Tube Light	20	6	120
		Fan	70	6	420
		Fridge	250	1	250
		Led Tv	100	1	100
43	Panel Room Near Transformers	FTL	46	8	368
		Fan	70	4	280
		Cooler	250	2	500
		Exhaust	60	1	60
44	Canteen Area - STD	Fridge	250	1	250
		Fan	70	1	70
		Led Bulb 9W	9	1	9
45	Canteen	Led Tube Light	20	12	240
		Fan	70	9	630
		Hot Case	1500	1	1500
		Deep Freezer	650	2	1300
		Fridge	250	1	250
		Exhaust	60	2	120
		Mixer	150	1	150
		Microwave	1500	1	1500
		Induction	2000	2	4000
46	Shops	Lep Tube Light	20	2	40
		Fridge	250	1	250
		PC Machine	450	1	450
		Fan	70	2	140
<b>Ground Floor</b>					
47	College Building office	Led Bulb 15W	15	7	105
		Fan	70	5	350
		Led Tube Light	20	5	100
		Old Fan	150	5	750
		Computer	120	3	360

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		Printer	150	3	450
		PC Machine	450	2	900
		FTL	46	9	414
		Exhaust	60	2	120
		Cooler	250	2	500
48	Principal Chamber	Led Tube Light	20	10	200
		AC 1.ST	1857	1	1857
		Fan	70	5	350
		Led TV	100	2	200
		Computer	120	1	120
		Cooler	250	1	250
49	Passage Area	Led Bulb 15W	15	6	90
50	Server Room	AC 1.ST	1857	1	1857
		Fan	70	1	70
		CFL18WX2 Nos.	44	4	176
		Led Tube light	20	1	20
		Printer	150	1	150
		Computer	120	2	240
51	library	FTL	46	40	1840
		Fan	70	4	280
		Old Fan	150	12	1800
		Computer	120	6	720
		Printer	150	2	300
		PC Machine	450	1	450
52	Open Area	lift Machine	3750	1	3750
		Water Cooler	500	1	500
53	Reading Room	Old Fan	150	4	600
		FTL	46	20	920
54	Auditorium Hall	FTL	46	82	3772
		Led Tube light	20	14	280
		Old Fan	150	14	2100
I		Fan	70	5	350
55	Passage	Led Bulb 1SW	15	7	105
56	Chemistry Lab 1	Old Fan	150	5	750
		Fan	70	1	70
		FTL	46	54	2484
		Exhaust	60	3	180
		Led Tube Light	20	3	60
		Hot Air Oven	1500	1	1500

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		Centrifuge	120	1	120
57	Chemsitry HOD Room	Old Fan	150	1	150
		FTL	46	2	92
		Microwave	1500	1	1500
		Cooler	250	1	250
58	Staff Room	FTL	46	2	92
		Fan	70	1	70
		Computer	120	1	120
		Printer	150	1	150
59	Chemistry Lab 2	Old Fan	150	4	600
		Led Tube Light	20	6	120
		Led Bulb 9W	9	2	18
		Exhaust	60	2	120
		Hot Air Oven	1500	1	1500
60	Instrumentat ion Lab	FTL	46	6	276
		Fan	70	1	70
		Exhaust	60	1	60
61	Store	Led Tube Light	20	6	120
		Fan	70	2	140
		Old Fan	150	1	150
62	Biochemistry Lab	Led Tube Light	20	6	120
		Old Fan	150	5	750
		Hot Air Oven	1500	1	1500
		Incubator	1500	1	1500
		FTL	46	1	46
		Fan	70	2	140
		Exhaust	60	2	120
		Computer	120	2	240
		Printer	150	1	150
63	Chemistry Lab 3	Led Tube Light	20	7	140
		Fan	70	5	350
64	Dept of Biochemistry & Chemsitry Staff	Led Tube Light	20	6	120
		Old Fan	150	1	150
		Fridge	250	1	250
65	Passage	Led Bulb 9W	9	5	45
66	Room No. 113 Smart Class-1	Led Tube Light	20	28	560
		Interactive Board	250	1	250
		Old Fan	150	6	900

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		Fan	70	1	70
67	Chemistry Research Lab	Led Tube Light	20	4	80
		Old Fan	150	1	150
		Fan	70	1	70
		Digital Calorimeter	200	1	200
		Hot Air Oven	1500	1	1500
		Centrifuge	120	1	120
68	Chemistry Lab 5	FTL	46	5	230
		Led Tube Light	20	4	80
		Old Fan	150	4	600
		Microwave	1500	1	1500
		Hot Air Oven	1500	1	1500
		Exhaust	60	2	120
69	Virtual Class	Fan	70	6	420
		FTL	46	6	276
		Led TV	100	1	100
70	Chemistry Instrumentation Lab	FTL	46	12	552
		Fan	70	4	280
		Fridge	250	2	500
71	Room	FTL	46	12	552
		Fan	70	4	280
	Outdoor	Motor 2HP	1500	1	1500
72	Room No. 130,131	FTL	46	14	644
		Fan	70	12	840
		Exhaust	60	4	240
73	Room No. 127,126	FTL	46	14	644
		Fan	70	12	840
		Exhaust	60	4	240
		Fridge	250	1	250
74	Room No. 128,129	FTL	46	1	46
		Fan	70	1	70
75	Quarter - College	FTL	46	4	184
		Fan	70	2	140
		Cooler	250	1	250
		Fridge	250	1	250
		Led TV	100	2	200
76	Cottage - 2Nos.	FTL	46	12	552
		Fan	70	6	420
		Geyser	1500	2	3000

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		Cooler	250	2	500
		Fridge	250	2	500
		Computer	120	2	240
		Led TV	100	2	200
77	Seminar Hall - Ground Floor	Led 2X2 Light	40	46	1840
		Fan	70	48	3360
78	Out door	Motor 2 HP	1500	1	1500
79	Generator Room	FTL	46	1	46
		Fan	70	1	70
80	Gymnasium Sports	Fan	70	2	140
		FTL	46	2	92
		Led Tube Light	20	2	40
81	Passage	Led Tube Light	20	9	180
82	Room No. 125 Nutrition Lab 1	Fan	70	6	420
		Led Tube Light	20	4	80
		FTL	46	5	230
		Exhaust	60	2	120
		Fridge	250	1	250
		Microwave	1500	5	7500
		Hot Air Oven	1500	1	1500
		Incubator	1500	1	1500
		Cooler	250	1	250
83	room	Led Tube Light	20	1	20
		FTL	46	3	138
		Fan	70	3	210
		Printer	150	2	300
		Computer	120	2	240
		PC Machine	450	1	450
		Exhaust	60	1	60
		Projector	250	1	250
		Fridge	250	1	250
84	Room No. 118 Smart Class -2	Led Tube Light	20	18	360
		Old Fan	150	7	1050
		Printer	150	1	150
85	CPE	FTL	46	2	92
		Fan	70	2	140
86	Chemistry Lab -4	Old Fan	150	5	750
		Led Tube Light	20	6	120
		Exhaust	60	2	120
		Incubator	1500	1	1500

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		Hot Air Oven	1500	1	1500
87	Room 121A	Projector	250	1	250
		FTL	46	2	92
		Fan	70	1	70
<b>First Floor</b>					
88	First Floor - Room No. 230 to 232	FTL	46	36	1656
		Fan	70	12	840
89	Clothing and Textile Department	Led Tube Light	20	17	340
		Fan	70	12	840
		Old Fan	150	13	1950
		Hot Air Oven	1500	1	1500
		FTL	46	8	368
		Fridge	250	1	250
		PC Machine	450	1	450
		Computer	120	1	120
		Printer	150	1	150
90	Passage Area	Led Bulb 9W	9	5	45
91	Room No. 218	Old Fan	150	4	600
		Fan	70	1	70
		FTL	46	4	184
92	Room No. 221 Smart Class -3	Led Tube Light	20	6	120
		Old Fan	150	7	1050
		FTL	46	16	736
		Projector	250	1	250
93	Dept of Maths	Fan	70	8	560
		Led Tube Light	20	18	360
		FTL	46	9	414
		Cooler	250	2	500
		Exhaust	60	2	120
		Wall Fan	60	7	420
		Computer	120	2	240
		Printer	150	2	300
94	Class Room MSC	FTL	46	4	184
		Fan	70	4	280
		Projector	250	1	250
95	MSC I& II	FTL	46	2	92
		Fan	70	2	140
96	Passage	FTL	46	5	230
97	Wash Room	FTL	46	2	92

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		Exhaust	60	1	60
98	Open Area	Water Cooler	500	1	500
99	Class Rooms	Fan	70	36	2520
		FTL	46	60	2760
100	Lift Area	Lift Machine	3750	1	3750
101	Room 228 & 227	FTL	46	12	552
		Fan	70	18	1260
102	Sports Room	FTL	46	12	552
		Led Tube Light	20	2	40
		Projector	250	1	250
		70W SV Lamp	90	10	900
		Exhaust	60	2	120
		Wall Fan	60	5	300
		Fan	70	1	70
		Computer	120	1	120
		Printer	150	1	150
103	Room No. 215	Fan	70	2	140
		FTL	46	4	184
104	Passage	Led Bulb 15W	15	4	60
105	Physics Lab-2	Old Fan	150	5	750
		Fan	70	3	210
		FTL	46	8	368
106	Physics Lab-3	FTL	46	8	368
		Led Tube Light	20	1	20
		Old Fan	150	9	1350
		Fan	70	3	210
		60W Bulb	60	1	60
		Spectrophotometer	180	3	540
107	Physics Lab-4	FTL	46	8	368
		Led Tube Light	20	1	20
		Old Fan	150	9	1350
		Fan	70	3	210
		60W Bulb	60	1	60
		Spectrophotometer	180	3	540
108	Room 210 - Physics Lab	FTL	46	6	276
		Wall Fan	60	7	420
		Computer	120	1	120
		Printer	150	1	150

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		Water Cooler	500	1	500
108	Room No.209 Dept of Physics	FTL	46	4	184
		Old Fan	150	2	300
		Computer	120	1	120
		Printer	150	1	150
109	Physics Lab -1	Old Fan	150	6	900
		FTL	46	8	368
		Fan	70	3	210
110	Examination Cell	FTL	46	22	1012
		Fan	70	10	700
		Wall Fan	60	2	120
		Old Fan	150	3	450
		Computer	120	7	840
		Printer	150	3	450
		Cooler	250	1	250
		Led Tube Light	20	2	40
		PC Machine	450	5	2250
		AC IT	1300	2	2600
111	Conference Room	AC I.5T	1857	2	3714
		Interactive Board	250	1	250
		FTL	46	8	368
		Fan	70	4	280
112	Room No.204,Computer Lab UGC	Cooler	250	4	1000
		Computer	120	25	3000
		Old Fan	150	4	600
		Fan	70	1	70
		Led Tube Light	20	5	100
		Projector	250	1	250
113	Room No. 205	Computer	120	42	5040
		Printer	150	6	900
		Old Fan	150	6	900
		Fan	70	5	350
		AC 1.5T	1857	2	3714
		Led Tube Light	20	26	520
114	Room No.203,202,201	Old Fan	150	12	1800
		Fan	70	3	210
		Computer	120	6	720
		Printer	150	3	450

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		Led Tube Light	20	30	600
		Interactive Board	250	3	750
115	Passage	Led Bulb 9W	9	5	45
116	Common Room	Fan	70	3	210
		FTL	46	4	184
117	Seminar Hall - First Floor	Led 2X2 Light	40	46	1840
		Fan	70	48	3360
118	Toilet	FTL	46	2	92
		Exhaust	60	1	60
<b>Second Floor</b>					
119	Second Floor - Common Room	FTL	46	3	138
		Fan	70	4	280
120	Room No. 301to 304	Led 2X2 Light	40	24	960
		Fan	70	16	1120
121	Room No. 305 and 306	Led 2X2 Light	40	12	480
		Fan	70	8	560
		Projector	250	2	500
122	Passage	Led Bulb 9W	9	16	144
123	Room No. 308 & 307 Computer Lab	Led 2X2 Light	40	11	440
		Fan	70	7	490
		Projector	250	1	250
		Computer	120	22	2640
		PC Machine	450	2	900
		Cooler	250	2	500
		AC .5T	1857	1	1857
124	Room No. 309 dept of Language	Led 2X2 Light	40	2	80
		Fan	70	2	140
125	Room No.310	Fan	70	8	560
		Led 2X2 Light	40	10	400
		Interactive Board	250	1	250
126	Room No.311Botany Lab	Fan	70	6	420
		Led 2X2 Light	40	8	320
		Wall Fan	60	2	120
127	Room No.312	Led 2X2 Light	40	6	240
		Fan	70	4	280
		Wall Fan	60	2	120
128	Room No.313,314,315	Led 2X2 Light	40	18	720

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		Fan	70	12	840
129	Digital Zoology	Led Tube Light	20	7	140
		Fan	70	6	420
130	Microbiology Lab	FTL	46	11	506
		Fan	70	8	560
		Exhaust	60	2	120
		Laminar Air Flow	200	1	200
		Hot Air Oven	1500	1	1500
		Incubator	1500	1	1500
		Fridge	250	2	500
		Computer	120	1	120
		Printer	150	1	150
131	Class Zoology	FTL	46	2	92
		Fan	70	4	280
		Incubator	1500	1	1500
		Hot Air Oven	1500	1	1500
		Fridge	250	1	250
		Exhaust	60	1	60
132	Biotechnology Lab	Fan	70	12	840
		FTL	46	12	552
		Incubator	1500	2	3000
		Hot Air Oven	1500	2	3000
		Fridge	250	1	250
		Exhaust	60	2	120
		Cooler	250	1	250
133	Botany & Microbiology Lab	Fan	70	3	210
		FTL	46	3	138
		Fridge	250	1	250
		Laminar Air Flow	200	1	200
		Hot Air Oven	1500	1	1500
		Incubator	1500	1	1500
134	Microbiology Lab-2	Fan	70	7	490
		FTL	46	3	138
		Cooler	250	1	250
		Incubator	1500	1	1500
		Distillation Plant	300	1	300
135	Class Room 331	Fan	70	9	630
		FTL	46	6	276

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136	Lab-2	FTL	46	8	368
		Fan	70	12	840
		Incubator	1500	1	1500
		Hot Air Oven	1500	1	1500
		Centrifuge	120	1	120
137	Room No.317 Zoology & Biochemistry	Led 2X2 Light	40	6	240
		Fan	70	4	280
		Computer	120	2	240
		PC Machine	450	1	450
		Printer	150	1	150
		Fridge	250	1	250
138	Room No.318	Led 2X2 Light	40	6	240
		Fan	70	4	280
		Wall Fan	60	1	60
		Computer	120	1	120
		Printer	150	1	150
		Microwave	1500	1	1500
		Fridge	250	1	250
139	Botany Lab-2	Led 2X2 light	40	6	240
		Fan	70	4	280
		Wall Fan	60	1	60
140	Museum	Fan	70	1	70
		FTL	46	1	46
141	Room No. 333	Fan	70	6	420
		FTL	46	9	414
142	Room No.334	Fan	70	4	280
		FTL	46	12	552
143	Room No.335	Fan	70	4	280
		FTL	46	12	552
144	Seminar Hall	Led 2X2 Light	40	46	1840
		Fan	70	48	3360
145	New Building Opposite Chemistry Dept	Led 2X2 light	40	33	1320
		Fan	70	36	2520
146	Out door	Led Street Light	30	36	1080
		<b>Total</b>		<b>3673</b>	<b>361709</b>

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### 3.4.3. Current Profile

S.N.	LOCATION	FIXTURE	WATT	QTY	TOTAL
1	Hostel Block - C Office	Led Tube Light	20	3	60
		Fan	70	6	420
		Computer	120	2	240
		Printer	150	2	300
		PC Machine	450	1	450
		18W CFL	18	3	54
		Led Bulb 9W	9	1	9
		FTL	46	2	92
		Led TV	100	1	100
2	Passage	Led Tube Light	20	1	20
		Led Bulb 9W	9	1	9
3	Ground Floor - Open Area	Led Tube light	20	1	20
		Led Bulb 9W	9	1	9
		Fan	70	1	70
4	Passage	Led Tube light	20	6	120
		Led Bulb 9W	9	10	90
5	Ground Floor Rooms	FTL	46	26	1196
		Fan	70	13	910
6	Wash Rooms	FTL	46	3	138
		Led Tube Light	20	3	60
		Exhaust	60	3	180
		Geyser	1500	3	4500
7	Halls	FTL	46	32	1472
		Fan	70	12	840
		Cooler	250	2	500
8	First Floor Rooms	FTL	46	38	1748
		Fan	70	19	1330
9	Wash Rooms	FTL	46	3	138
		Led Tube light	20	3	60
		Exhaust	60	3	180
		Geyser	1500	3	4500
10	Passage Area	Led Bulb 9W	9	10	90
		Led Tube Light	20	6	120
11	Second Floor Room	FTL	46	38	1748
		Fan	70	19	1330
		FTL	46	3	138
12	Wash Rooms	Led Tube Light	20	3	60

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		Exhaust	60	3	180
		Geyser	1500	3	4500
13	Passage Area	Led Bulb 9W	9	10	90
		Led Tube Light	20	6	120
14	Submersible	Motor 10 HP	7500	1	7500
15	Hostel Block B - Kitchen	FTL	46	1	46
		Fan	70	1	70
		Led Tube Light	20	1	20
16	Dinning Hall - Ground Floor	FTL	46	9	414
		Fan	70	5	350
17	Ground Floor Rooms	FTL	46	24	1104
		Fan	70	24	1680
18	First Floor Rooms	FTL	46	27	1242
		Fan	70	27	1890
19	Second Floor Room	FTL	46	27	1242
		Fan	70	27	1890
20	Hostel Block A - Ground Floor Rooms	Led Tube Light	20	87	1740
		Fan	70	87	6090
21	Wash Rooms	Led Tube Light	20	4	80
		FTL	46	4	184
		Geyser	1500	4	6000
		Exhaust	60	4	240
22	First Floor Rooms	Led Tube Light	20	87	1740
		Fan	70	87	6090
23	Wash Rooms	Led Tube Light	20	4	80
		FTL	46	4	184
		Geyser	1500	4	6000
		Exhaust	60	4	240
24	Second Floor Rooms	Led Tube Light	20	78	1560
		Fan	70	78	5460
		Water Cooler	500	1	500
25	Wash Rooms	Led Tube Light	20	4	80
		FTL	46	4	184
		Geyser	1500	4	6000
		Exhaust	60	4	240
26	Dinning Hall	Old Fan	150	13	1950
		Led Bulb 9W	9	14	126
		Cooler	250	1	250
		Exhaust	60	2	120
		Fridge	250	1	250
		Fan	70	1	70

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		Led TV	100	1	100
		Water Cooler	500	1	500
		Deep Freezer	650	2	1300
27	Roti Making Room	Led Tube Light	20	2	40
		Exhaust	60	1	60
28	Hostel Block D	Water Cooler	500	1	500
29	Ground Floor Room	Led Tube light	20	8	160
		Fan	70	8	560
30	Wash Room	FTL	46	1	46
		Led Tube light	20	1	20
		Geyser	1500	1	1500
31	Passage	Led Bulb 9W	9	10	90
32	First Floor Room	Led Tube Light	20	10	200
		Fan	70	10	700
33	Wash Room	FTL	46	1	46
		Led Tube light	20	1	20
		Geyser	1500	1	1500
34	Passage	Led Bulb 9W	9	12	108
35	Second Floor Room	Led Tube Light	20	10	200
		Fan	70	10	700
36	Passage	Led Bulb 9W	9	12	108
37	Wash Room	FTL	46	1	46
		Led Tube Light	20	1	20
		Geyser	1500	1	1500
38	Submersible	Motor 7.5 HP	5625	1	5625
39	Dept. Of Human Development	Cooler	250	1	250
		Fan	70	8	560
		FTL	46	4	184
		Led Tube light	20	5	100
		Projector	250	1	250
40	Dept. of Resource Management	Led Tube light	20	13	260
		Fan	70	8	560
		Printer	150	2	300
		Computer	120	2	240
		Fridge	250	1	250
		PC Machine	450	1	450
		Cooler	250	1	250
41	warden House	Fan	70	2	140
		Led Tube Light	20	4	80
		Cooler	250	1	250

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		Led Tv	100	1	100
		Fridge	250	1	250
42	Principal Bungalow	Cooler	250	2	500
		Motor HP	750	1	750
		Led Tube Light	20	6	120
		Fan	70	6	420
		Fridge	250	1	250
		Led Tv	100	1	100
43	Panel Room Near Transformers	FTL	46	8	368
		Fan	70	4	280
		Cooler	250	2	500
		Exhaust	60	1	60
44	Canteen Area - STD	Fridge	250	1	250
		Fan	70	1	70
		Led Bulb 9W	9	1	9
45	Canteen	Led Tube Light	20	12	240
		Fan	70	9	630
		Hot Case	1500	1	1500
		Deep Freezer	650	2	1300
		Fridge	250	1	250
		Exhaust	60	2	120
		Mixer	150	1	150
		Microwave	1500	1	1500
		Induction	2000	2	4000
46	Shops	Lep Tube Light	20	2	40
		Fridge	250	1	250
		PC Machine	450	1	450
		Fan	70	2	140
<b>Ground Floor</b>					
47	College Building office	Led Bulb 15W	15	7	105
		Fan	70	5	350
		Led Tube Light	20	5	100
		Old Fan	150	5	750
		Computer	120	3	360
		Printer	150	3	450
		PC Machine	450	2	900
		FTL	46	9	414
		Exhaust	60	2	120
		Cooler	250	2	500
48	Principal Chamber	Led Tube Light	20	10	200

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		AC 1.ST	1857	1	1857
		Fan	70	5	350
		Led TV	100	2	200
		Computer	120	1	120
		Cooler	250	1	250
49	Passage Area	Led Bulb 15W	15	6	90
50	Server Room	AC 1.ST	1857	1	1857
		Fan	70	1	70
		CFL18WX2 Nos.	44	4	176
		Led Tube light	20	1	20
		Printer	150	1	150
		Computer	120	2	240
51	library	FTL	46	40	1840
		Fan	70	4	280
		Old Fan	150	12	1800
		Computer	120	6	720
		Printer	150	2	300
		PC Machine	450	1	450
52	Open Area	lift Machine	3750	1	3750
		Water Cooler	500	1	500
53	Reading Room	Old Fan	150	4	600
		FTL	46	20	920
54	Auditorium Hall	FTL	46	82	3772
		Led Tube light	20	14	280
		Old Fan	150	14	2100
I		Fan	70	5	350
55	Passage	Led Bulb 1SW	15	7	105
56	Chemistry Lab 1	Old Fan	150	5	750
		Fan	70	1	70
		FTL	46	54	2484
		Exhaust	60	3	180
		Led Tube Light	20	3	60
		Hot Air Oven	1500	1	1500
		Centrifuge	120	1	120
57	Chemistry HOD Room	Old Fan	150	1	150
		FTL	46	2	92
		Microwave	1500	1	1500
		Cooler	250	1	250
58	Staff Room	FTL	46	2	92
		Fan	70	1	70

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		Computer	120	1	120
		Printer	150	1	150
59	Chemistry Lab 2	Old Fan	150	4	600
		Led Tube Light	20	6	120
		Led Bulb 9W	9	2	18
		Exhaust	60	2	120
		Hot Air Oven	1500	1	1500
60	Instrumentat ion Lab	FTL	46	6	276
		Fan	70	1	70
		Exhaust	60	1	60
61	Store	Led Tube Light	20	6	120
		Fan	70	2	140
		Old Fan	150	1	150
62	Biochemistry Lab	Led Tube Light	20	6	120
		Old Fan	150	5	750
		Hot Air Oven	1500	1	1500
		Incubator	1500	1	1500
		FTL	46	1	46
		Fan	70	2	140
		Exhaust	60	2	120
		Computer	120	2	240
		Printer	150	1	150
63	Chemistry Lab 3	Led Tube Light	20	7	140
		Fan	70	5	350
64	Dept of Biochemistry & Chemsitry Staff	Led Tube Light	20	6	120
		Old Fan	150	1	150
		Fridge	250	1	250
65	Passage	Led Bulb 9W	9	5	45
66	Room No. 113 Smart Class-1	Led Tube Light	20	28	560
		Interactive Board	250	1	250
		Old Fan	150	6	900
		Fan	70	1	70
67	Chemistry Research Lab	Led Tube Light	20	4	80
		Old Fan	150	1	150
		Fan	70	1	70
		Digital Calorimeter	200	1	200
		Hot Air Oven	1500	1	1500
		Centrifuge	120	1	120
68	Chemistruy Lab 5	FTL	46	5	230

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		Led Tube Light	20	4	80
		Old Fan	150	4	600
		Microwave	1500	1	1500
		Hot Air Oven	1500	1	1500
		Exhaust	60	2	120
69	Virtual Class	Fan	70	6	420
		FTL	46	6	276
		Led TV	100	1	100
70	Chemsitry Instrumentat ion Lab	FTL	46	12	552
		Fan	70	4	280
		Fridge	250	2	500
71	Room	FTL	46	12	552
		Fan	70	4	280
	Outdoor	Motor 2HP	1500	1	1500
72	Room No. 130,131	FTL	46	14	644
		Fan	70	12	840
		Exhaust	60	4	240
73	Room No. 127,126	FTL	46	14	644
		Fan	70	12	840
		Exhaust	60	4	240
		Fridge	250	1	250
74	Room No. 128,129	FTL	46	1	46
		Fan	70	1	70
75	Quarter - College	FTL	46	4	184
		Fan	70	2	140
		Cooler	250	1	250
		Fridge	250	1	250
		Led TV	100	2	200
76	Cottage - 2Nos.	FTL	46	12	552
		Fan	70	6	420
		Geyser	1500	2	3000
		Cooler	250	2	500
		Fridge	250	2	500
		Computer	120	2	240
		Led TV	100	2	200
77	Seminar Hall - Ground Floor	Led 2X2 Light	40	46	1840
		Fan	70	48	3360
78	Out door	Motor 2 HP	1500	1	1500
79	Generator Room	FTL	46	1	46
		Fan	70	1	70

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80	Gymnasium Sports	Fan	70	2	140
		FTL	46	2	92
		Led Tube Light	20	2	40
81	Passage	Led Tube Light	20	9	180
82	Room No. 125 Nutrition Lab 1	Fan	70	6	420
		Led Tube Light	20	4	80
		FTL	46	5	230
		Exhaust	60	2	120
		Fridge	250	1	250
		Microwave	1500	5	7500
		Hot Air Oven	1500	1	1500
		Incubator	1500	1	1500
		Cooler	250	1	250
83	room	Led Tube Light	20	1	20
		FTL	46	3	138
		Fan	70	3	210
		Printer	150	2	300
		Computer	120	2	240
		PC Machine	450	1	450
		Exhaust	60	1	60
		Projector	250	1	250
		Fridge	250	1	250
84	Room No. 118 Smart Class -2	Led Tube Light	20	18	360
		Old Fan	150	7	1050
		Printer	150	1	150
85	CPE	FTL	46	2	92
		Fan	70	2	140
86	Chemistry Lab -4	Old Fan	150	5	750
		Led Tube Light	20	6	120
		Exhaust	60	2	120
		Incubator	1500	1	1500
		Hot Air Oven	1500	1	1500
87	Room 121A	Projector	250	1	250
		FTL	46	2	92
		Fan	70	1	70
<b>First Floor</b>					
88	First Floor - Room No. 230 to 232	FTL	46	36	1656
		Fan	70	12	840
89	Clothing and Textile Department	Led Tube Light	20	17	340
		Fan	70	12	840

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		Old Fan	150	13	1950
		Hot Air Oven	1500	1	1500
		FTL	46	8	368
		Fridge	250	1	250
		PC Machine	450	1	450
		Computer	120	1	120
		Printer	150	1	150
90	Passage Area	Led Bulb 9W	9	5	45
91	Room No. 218	Old Fan	150	4	600
		Fan	70	1	70
		FTL	46	4	184
92	Room No. 221 Smart Class -3	Led Tube Light	20	6	120
		Old Fan	150	7	1050
		FTL	46	16	736
		Projector	250	1	250
93	Dept of Maths	Fan	70	8	560
		Led Tube Light	20	18	360
		FTL	46	9	414
		Cooler	250	2	500
		Exhaust	60	2	120
		Wall Fan	60	7	420
		Computer	120	2	240
		Printer	150	2	300
94	Class Room MSC	FTL	46	4	184
		Fan	70	4	280
		Projector	250	1	250
95	MSC I& II	FTL	46	2	92
		Fan	70	2	140
96	Passage	FTL	46	5	230
97	Wash Room	FTL	46	2	92
		Exhaust	60	1	60
98	Open Area	Water Cooler	500	1	500
99	Class Rooms	Fan	70	36	2520
		FTL	46	60	2760
100	Lift Area	Lift Machine	3750	1	3750
101	Room 228 & 227	FTL	46	12	552
		Fan	70	18	1260
102	Sports Room	FTL	46	12	552
		Led Tube Light	20	2	40
		Projector	250	1	250

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		70W SV Lamp	90	10	900
		Exhaust	60	2	120
		Wall Fan	60	5	300
		Fan	70	1	70
		Computer	120	1	120
		Printer	150	1	150
103	Room No. 215	Fan	70	2	140
		FTL	46	4	184
104	Passage	Led Bulb 15W	15	4	60
105	Physics Lab-2	Old Fan	150	5	750
		Fan	70	3	210
		FTL	46	8	368
106	Physics Lab-3	FTL	46	8	368
		Led Tube Light	20	1	20
		Old Fan	150	9	1350
		Fan	70	3	210
		60W Bulb	60	1	60
		Spectrophotometer	180	3	540
107	Physics Lab-4	FTL	46	8	368
		Led Tube Light	20	1	20
		Old Fan	150	9	1350
		Fan	70	3	210
		60W Bulb	60	1	60
		Spectrophotometer	180	3	540
108	Room 210 - Physics Lab	FTL	46	6	276
		Wall Fan	60	7	420
		Computer	120	1	120
		Printer	150	1	150
		Water Cooler	500	1	500
108	Room No.209 Dept of Physics	FTL	46	4	184
		Old Fan	150	2	300
		Computer	120	1	120
		Printer	150	1	150
109	Physics Lab -1	Old Fan	150	6	900
		FTL	46	8	368
		Fan	70	3	210
110	Examination Cell	FTL	46	22	1012
		Fan	70	10	700
		Wall Fan	60	2	120

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		Old Fan	150	3	450
		Computer	120	7	840
		Printer	150	3	450
		Cooler	250	1	250
		Led Tube Light	20	2	40
		PC Machine	450	5	2250
		AC IT	1300	2	2600
111	Conference Room	AC 1.5T	1857	2	3714
		Interactive Board	250	1	250
		FTL	46	8	368
		Fan	70	4	280
112	Room No.204,Computer Lab UGC	Cooler	250	4	1000
		Computer	120	25	3000
		Old Fan	150	4	600
		Fan	70	1	70
		Led Tube Light	20	5	100
		Projector	250	1	250
113	Room No. 205	Computer	120	42	5040
		Printer	150	6	900
		Old Fan	150	6	900
		Fan	70	5	350
		AC 1.5T	1857	2	3714
		Led Tube Light	20	26	520
114	Room No.203,202,201	Old Fan	150	12	1800
		Fan	70	3	210
		Computer	120	6	720
		Printer	150	3	450
		Led Tube Light	20	30	600
		Interactive Board	250	3	750
115	Passage	Led Bulb 9W	9	5	45
116	Common Room	Fan	70	3	210
		FTL	46	4	184
117	Seminar Hall - First Floor	Led 2X2 Light	40	46	1840
		Fan	70	48	3360
118	Toilet	FTL	46	2	92
		Exhaust	60	1	60
<b>Second Floor</b>					
119	Second Floor - Common Room	FTL	46	3	138
		Fan	70	4	280
120	Room No. 301to 304	Led 2X2 Light	40	24	960

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		Fan	70	16	1120
121	Room No. 305 and 306	Led 2X2 Light	40	12	480
		Fan	70	8	560
		Projector	250	2	500
122	Passage	Led Bulb 9W	9	16	144
123	Room No. 308 & 307 Computer Lab	Led 2X2 Light	40	11	440
		Fan	70	7	490
		Projector	250	1	250
		Computer	120	22	2640
		PC Machine	450	2	900
		Cooler	250	2	500
		AC .5T	1857	1	1857
124	Room No. 309 dept of Language	Led 2X2 Light	40	2	80
		Fan	70	2	140
125	Room No.310	Fan	70	8	560
		Led 2X2 Light	40	10	400
		Interactive Board	250	1	250
126	Room No.311Botany Lab	Fan	70	6	420
		Led 2X2 Light	40	8	320
		Wall Fan	60	2	120
127	Room No.312	Led 2X2 Light	40	6	240
		Fan	70	4	280
		Wall Fan	60	2	120
128	Room No.313,314,315	Led 2X2 Light	40	18	720
		Fan	70	12	840
129	Digital Zoology	Led Tube Light	20	7	140
		Fan	70	6	420
130	Microbiology Lab	FTL	46	11	506
		Fan	70	8	560
		Exhaust	60	2	120
		Laminar Air Flow	200	1	200
		Hot Air Oven	1500	1	1500
		Incubator	1500	1	1500
		Fridge	250	2	500
		Computer	120	1	120
		Printer	150	1	150
131	Class Zoology	FTL	46	2	92
		Fan	70	4	280
		Incubator	1500	1	1500
		Hot Air Oven	1500	1	1500

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		Fridge	250	1	250
		Exhaust	60	1	60
132	Biotechnology Lab	Fan	70	12	840
		FTL	46	12	552
		Incubator	1500	2	3000
		Hot Air Oven	1500	2	3000
		Fridge	250	1	250
		Exhaust	60	2	120
		Cooler	250	1	250
133	Botany & Microbiology Lab	Fan	70	3	210
		FTL	46	3	138
		Fridge	250	1	250
		Laminar Air Flow	200	1	200
		Hot Air Oven	1500	1	1500
		Incubator	1500	1	1500
134	Microbiology Lab-2	Fan	70	7	490
		FTL	46	3	138
		Cooler	250	1	250
		Incubator	1500	1	1500
		Distillation Plant	300	1	300
135	Class Room 331	Fan	70	9	630
		FTL	46	6	276
136	Lab-2	FTL	46	8	368
		Fan	70	12	840
		Incubator	1500	1	1500
		Hot Air Oven	1500	1	1500
		Centrifuge	120	1	120
137	Room No.317 Zoology & Biochemistry	Led 2X2 Light	40	6	240
		Fan	70	4	280
		Computer	120	2	240
		PC Machine	450	1	450
		Printer	150	1	150
		Fridge	250	1	250
138	Room No.318	Led 2X2 Light	40	6	240
		Fan	70	4	280
		Wall Fan	60	1	60
		Computer	120	1	120
		Printer	150	1	150
		Microwave	1500	1	1500

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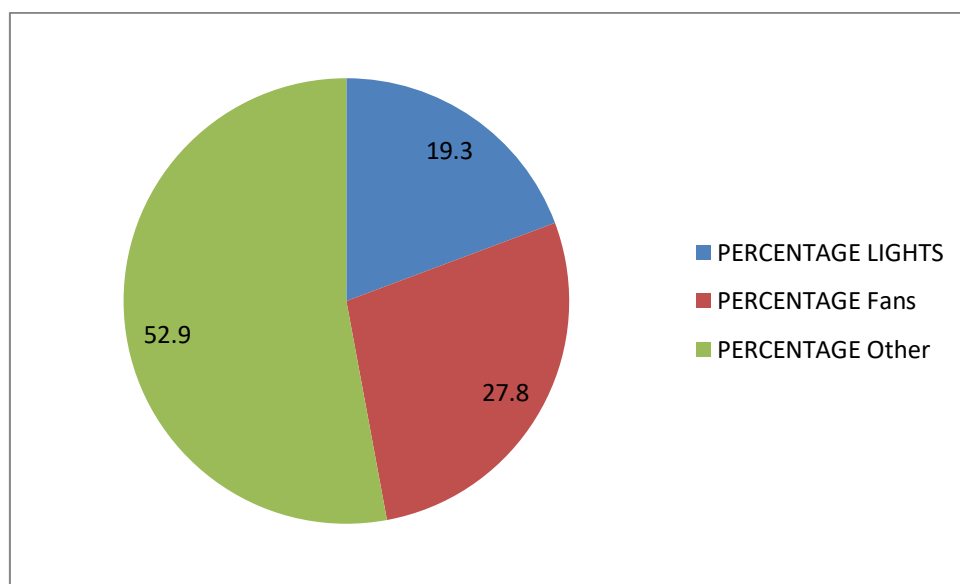


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		Fridge	250	1	250
139	Botany Lab-2	Led 2X2 ight	40	6	240
		Fan	70	4	280
		Wall Fan	60	1	60
140	Museum	Fan	70	1	70
		FTL	46	1	46
141	Room No. 333	Fan	70	6	420
		FTL	46	9	414
142	Room No.334	Fan	70	4	280
		FTL	46	12	552
143	Room No.335	Fan	70	4	280
		FTL	46	12	552
144	Seminar Hall	Led 2X2 Light	40	46	1840
		Fan	70	48	3360
145	New Building Opposite Chemistry Dept	Led 2X2 light	40	33	1320
		Fan	70	36	2520
146	Out door	Led Street Light	30	36	1080
		<b>Total</b>		<b>3673</b>	<b>361709</b>

LOAD PROFILE (KW)				
LOAD	LIGHTS	Fans	Other	TOTAL
VALUES	69.80	100.50	191.41	361.71



**Note: Load Profile has not changed much (0.25%).**

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### 3.5. Losses

#### 3.5.1. Demand

Reduction in contract demand is recommended to RMD in the year.

AVERAGE	KVAH
ACTUAL BILLED	158
RECORDED MAXIMUM	78

Expected Saving 80 KVA per billing and 27840; which means opportunity to save approximately Rs. 6500000 over twenty years.

#### 3.5.2. Power Factor

Correction in Power Factor is recommended to 99%.

	KVAH	PF	KW
ACTUAL	217934	0.91	198319.9
EXPECTED	198518	0.999	198319.9

Expected Saving 19500 KVAh Units and Rs. 165000 per annum; which means opportunity to save approximately Rs. 3000000 over twenty years.

#### 3.5.3. LED LIGHTS

Replacement of Traditional FTLs to LED Lights is recommended.

Expected Saving 11.60Kw and 60Kwh approximately per day saving can be possible.

Expected Saving Rs. 125000 per annum in Units and Rs. 35000 in Demand; which means opportunity to save approximately Rs. 3000000 over twenty years.

#### 3.5.4. BLDC

Replacement of Traditional Fans to BLDC Fan is recommended.

Expected Saving 13.89Kw and 60Kwh approximately per day saving can be possible.

Expected Saving Rs. 125000 per annum in Units and Rs. 35000 in Demand; which means opportunity to save approximately Rs. 3000000 over twenty years.



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### 4. GREEN AUDIT

#### 4.1. Floral Diversity

Year	No. of Trees
BEFORE 2022-2023	220
2022-2023	05
2023-2024	04
Total	229

SL.No.	CommonName	BotanicalName	Quantity
1	Awla	<i>Phyllanthusemblica</i>	17
2	Mango	<i>Mangiferaindica</i>	41
3	Palash	<i>Buteamonosperma</i>	3
4	Palm	<i>Roystonearegia</i>	13
5	Jamun	<i>Syzygiumcumini</i>	7
6	Amrud	<i>Psidiumguajava</i>	4
7	Bel	<i>Aeglemarmelos</i>	1
8	Neem	<i>Azadirachtaindica</i>	10
9	Bottle brush	<i>Callistemon lanceolatus</i>	2
10	Peepal	<i>Ficusreligiosa</i>	4
11	Subabool	<i>Leucaenaleucocephala</i>	6
12	Gulmohar	<i>Delonixregia</i>	6
13	Chicku	<i>Manilkarazapota</i>	1
14	Sita Ashok	<i>Saracaindica</i>	2
15	Laxmitara	<i>Simaroubaglauca</i>	1
16	Maulshri	<i>Mimusopselengi</i>	5
17	Kadam	<i>Neolamarckiacadamba</i>	4
18	Karanj	<i>Millettiapinnata</i>	2
19	Shisham	<i>Dalbergiasissoo</i>	7
20	Kaner	<i>Neriumindiaum</i>	1
21	Parijat	<i>Nyctanthes</i>	5
22	Kapok	<i>Ceibapentandra</i>	2
23	Rakhi	<i>Calliandrahaematocephala</i>	4
24	MeethiNeem	<i>Murrayakeonigii</i>	1
25	Palm	<i>Roystonearegia</i>	13
26	Imli	<i>Tamarindusindica</i>	4
27	Ashok	<i>Polyalthialongifolia</i>	47
28	Jhaow	<i>Casurina</i>	1
29	Nilgiri	<i>Eucalyptus sp</i>	6
30	Munga	<i>Moringaoleifera</i>	1
31	Madhukamini	<i>Murrayapaniculata</i>	1
32	Sitafal	<i>AnnonaSquamosa</i>	1
33	Bargad	<i>Ficusbenghalensis</i>	2
34	Copper pod tree	<i>Peltaphorumsp</i>	7
35	Pride of India	<i>Lagerstroemia speciosa</i>	6

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### SUMMARY

Sr. No.	Area	Total Trees
Total		229

### 4.2. Faunal Diversity

S.N.	Scientific Name	Common Name	Family	Category
1.	Amoeba proteus	Amoeba	Amoebidae	Very Common
2.	Euglena viridis	Euglena	Euglenaceae	Very Common
3.	Paramecium cardatum	Paramecium	Parameciidae	Very Common
4.	Cyclops	Cyclops	Cyclopidae	Common
5.	Daphnia	Daphnia	Daphniidae	Common
6.	Vorticella convallaria	Vorticella	Vorticellidae	Common
7.	Lumbricus terrestris	Earthworm	Lumbricidae	Very Common
8.	Hirudo medicinalis	Leech	Clitellata (Class)	Common
9.	Periplaneta americana	Cockroach	Blattidae	Common
10.	Formica rufa	Ant	Formicidae	Very Common
11.	Culiseta longiareolata	Mosquito	Culicidae	Very Common
12.	Musca domestica	Housefly	Muscidae	Very Common
13.	Apis cerana indica	Honey bee	Apidae	Very Common
14.	Trigoniulus corallinus	Millipede	Diplopoda (Class)	Common
15.	Scolopendra cataracta	Centipede	Chilopoda (Class)	Common
16.	Schistocerca americana	Grasshopper	Acrididae	Rare
17.	Aciagrion occidentale	Green Striped Slender	Coenagrionoidae	Common
18.	Agriocnemis femina	Pruinosed Dartlet	Coenagrionoidae	Common
19.	Ceriagrion coromandelianum	Coromandel Marsh Dart	Coenagrionoidae	Rare
20.	Ischnura aurora	Golden Dartlet	Coenagrionoidae	Rare
21.	Anax guttatus	Blue-tailed Green Darner	Aeshnidae	Rare
22.	Paragomphus lineatus	Common Hooktail	Gomphidae	Common
23.	Brachythemis contaminata	Ditch Jewel	Libellulidae	Common
24.	Orthetrum taeniolatum	Taeniolate Marsh Hawk	Libellulidae	Rare
25.	Orthetrum sabina	Green Marsh Hawk	Libellulidae	Rare
26.	Papilio polytes	Common Mormon	Papilionidae	Common
27.	Talica nyseus	Red Pierrot	Lycaenidae	Rare
28.	Euchrysops cnejus	Gram blue	Lycaenidae	Common
29.	Castalius rosomon	Common Pierrot	Lycaenidae	Common
30.	Elymnias hypermnestra	Common Palm fly	Nymphalidae	Rare
31.	Melanitis leda	Common Evening Brown	Nymphalidae	Common
32.	Melanitis phedima	Dark Evening Brown	Nymphalidae	Common

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33.	Junonia lemonias	Lemon Pansy	Nymphalidae	Rare
34.	Danaus chrysippus	Plain Tiger	Nymphalidae	Common
35.	Eurema brigitta	Small Grass Yellow	Pieridae	Common
36.	Leptosia nina	Psyche	Pieridae	Common
37.	Pseudaletia separata	Northern Armyworm	Noctuidae	Rare
38.	Neoscona chrysanthusi	Orb Weaver Spider	Araneidae	Rare
39.	Hottentotta tamulus	Indian red scorpion	Buthidae	Rare
40.	Pardosa amkhasensis	Ground Hunter	Lycosidae	Rare
41.	Bellamya bengalensis	Bellamya	Viviparidae	Rare
42.	Hoplobatrachus tigerinus	Indian Bullfrog	Dicroglossidae	Rare
43.	Rana temporaria	Common Frog	Ranidae	Rare
44.	Calotes versicolor	Garden Lizard/ Girgit	Agamidae	Common
45.	Zootoca vivipara	Common Viviparous Lizard	Lacertidae	Common
46.	Hemidactylus frenatus	Common house gecko	Gekkonidae	Common
47.	Ptyas mucosa	Rat Snake	Colubridae	Rare
48.	Lycodon aulicus	Ganeta	Colubridae	Rare
49.	Checkered Keelback	Paani wala Saap	Natricidae	Rare
50.	Naja naja	Indian Cobra	Elapidae	Rare
51.	Bungarus caeruleus	Common Indian Krait	Elapidae	Rare
52.	Ardeola grayii	Indian Pond Heron	Ardreidae	Common
53.	Columba livia	Blue Rock Pigeon	Columbidae	Very Common
54.	Upupa epops	Common Hoopoe	Upupidae	Common
55.	Ocyrceros birostris	Indian Grey Hornbill	Bucerotidae	Common
56.	Eudynamys scolopaceus	Asian Koel	Cuculidae	Common
57.	Corvus splendens	House Crow	Corvidae	Very Common
58.	Passer domesticus	House Sparrow	Passeridae	Common
59.	Saxicoldies fulicatus	Indian Robin	Laniidae	Common
60.	Acridotheres trisits	Common Myna	Muscicapidae	Common
61.	Gluacidium radiatum	Jungle owlet	Strigidae	Rare
62.	Dicrurus macrocercus	Black Drongo	Corvidae	Rare
63.	Coracias benghalensis	Indian roller	Coraciidae	Rare
64.	Psittacula cyanocephala	Plum Headed Parakeet	Psittaculidae	Common
65.	Sciurus	Squirrel	Sciuridae	Common
66.	Bonnet macaque	Monkey (Red)	Primates (Order)	Common
67.	Semnopithecus	Monkey (Black)	Primates (Order)	Common
68.	Felis catus	Domestic Cat	Felidae	Common
69.	Canis familiaris	Domestic Dog	Canidae	Common
70.	Bos taurus	Cattle (Cow)	Bovidae	Common



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### 4.3. Green Approach

Sr. No.	ACTIVITY	YES/NO	REMARK
1.	E-waste collection box:	YES	E-waste is collected in separate designated box which is planned to recycle through qualified designated agency in later stages.
2.	Dry-waste collection box:	YES	Institute has separate Dry waste Management system. Dry waste is collected in separate designated box which is planned to recycle through local body waste management system.
3.	Wet-waste collection box:	YES	Wet waste is directly put in composting.
4.	Paper-waste collection box:	YES	Paper waste is collected in separate designated box which is planned to dispose through qualified designated agency.
5.	Cleaning:	YES	Institute runs good cleaning practice.
6.	Composting:	YES	Institute composts their wet waste.
7.	Safe and waste free environment drive:	YES	Institute runs Safe and waste free environment drive within as well as outside campus.
8.	Sewage treatment	NO	
9.	Waste management	NO	
10.	Swachh Bharat campaign	NO	
11.	Water resources	YES	Institute have sufficient water resources from owned Well, Borewell and local body supply.
12.	Rain water harvesting:	YES	Institute has implemented basic rain water harvesting system.
13.	Waste water treatment:	NO	
14.	RO water treatment	YES	
15.	Greenery:	YES	Institute has maintained Greenery within campus
16.	Plantation: (trees and plants in campus)	YES	Institute do Plantation in campus during monsoon.
17.	Plantation drive by the institute: (trees and plants outside campus)	NO	
18.	LED lights:	YES	Institute Uses LED lights at maximum of the points for Illumination requirements.
19.	Energy & environment monitoring systems	NO	

Energy, Electrical & safety Audits | Solar and Electric Consultation | Power Management by IOT  
Solar Rooftop EPC | New Electric Connections| Meters (New, Shifting, additional)  
Load Management | Electrical Installation & Maintenance| Permissions, approvals, liasoning

Plot No. 108 / D - 8, Akshay Co. op. Society, Gorai- 1, Borivali (W), Mumbai-400092.

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20.	Save energy posters	NO	
21.	Energy management	NO	
22.	Renewables (solar/wind)	YES	Institute has installed SPV System
23.	Sensor based equipment	NO	
24.	Switch off posters	NO	
25.	Emergency contact numbers list:	NO	
26.	Health/medical facilities	YES	Institute has medical facilities within campus.
27.	Critical safety parameters:	NO	
28.	Disaster management training	NO	
29.	Awareness, approach, Seminars	YES	Institute conduct/participate in seminars, lectures, symposiums for good environment awareness and approach.
30.	Code of conducts, SOPs	NO	

**No Record prepared and preserved by college for 2022-23**



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### 5. ENVIRONMENT AUDIT 2023-24

#### 5.1. Air Quality

POLLUTANTS	PM 2.5	PM 10	O3	CO	NO2	SO2
LIMIT	35	150	21	35	10	6
UNIT	µgm/m <sup>3</sup>	µgm/m <sup>3</sup>	µgm/m <sup>3</sup>	µgm/m <sup>3</sup>	µgm/m <sup>3</sup>	µgm/m <sup>3</sup>
VALUE	22	60	11	6	3	2
REMARK	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD

#### 5.2. Water Quality

##### 5.2.1. Water Quality

Sr. No.	Category	Location	Quality			Usage
			TDS	PH	ORP	
1.	Municipal / Local Body Water Supply	CAMPUS.	150	7.8	300	Drinking
2.	Bore well	CAMPUS.	400	6.8	350	ALL PURPOSE
3.	Open Well	CAMPUS.	210	7.1	310	ALL PURPOSE
4.	Any other source	NA	NA	NA	NA	NA

##### 5.2.2. Filtration

1. Ro Based Filtration Plants near water supply point total 12 Numbers.

##### 5.2.3. Water Balance

SL NO	HEAD	UNIT	QUANTITY
1	AVERAGE DAILY OCCUPANTS	NO	3200
2	AVERAGE DAILY VISITORS	NO	32
3	WATER REQUIREMENT FOR OCCUPANTS	LPD	48000
4	WATER REQUIREMENT FOR VISITORS	LPD	320
5	TOTAL WATER REQUIREMENT	LPA	9664000
6	INHOUSE WATER SOURCE	LPD	3500000
7	OUTSOURCED WATER	LPD	5000000
8	HARVESTED RAIN WATER	LPA	1080000
9	SURPLUS/SHORTFALL WATER	LPA	84000

#### Note:

As per data provided by college



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### 5.3. Atmosphere

Sr. No.	BUILDING	LOCATION	Illumination		Temperature		Humidity		Noise level	
			LUX		°C		%		db	
1	GROUND FLOOR	INDOOR	150	OK	31.2	OK	52	OK	36	OK
2	GROUND FLOOR	OUTDOOR	155	OK	31.5	OK	51	OK	38	OK
3	FIRST FLOOR	INDOOR	165	OK	31.8	OK	55	OK	34	OK
4	FIRST FLOOR	OUTDOOR	175	OK	32.1	OK	52	OK	35	OK
5	SECOND FLOOR	INDOOR	160	OK	32.2	OK	51	OK	32	OK
6	SECOND FLOOR	OUTDOOR	180	OK	32.8	OK	50	OK	33	OK

### 5.4. Wastage Management

- Do the premises generate wastage?  
YES-Minor
- What type of wastage and quantity is generated? What are actions taken on it?

Sr. No.	Wastage Type	Quantity	Action
1.	Biomass	NA	NA
2.	Paper	Non- Quantified	Dispose Through Third Party
3.	Water	Non- Quantified	NA
4.	E-Waste	Non- Quantified	Dispose Through Third Party
5.	Bio-Hazardous	NA	NA
6.	Fuel	NA	NA
7.	Production	NA	NA
8.	Process	NA	NA
9.	Food	NA	NA
10.	Man-Hours	NA	NA

### 3. Recycling Procedures

- Does Premises users aware about Recycle or Re-use of resources used?  
**NO**
- Does institute run wastage and recycling awareness campaign for users?  
YES Periodical seminars
- Does institute have SOP for wastage and recycling procedures?  
**NO**
- Does Premises Recycle or Re-use resources used?  
YES Composting

### 4. Wastage Recovery & Conservation

- Any Energy conservation method applied?  
YES LED LIGHTS
- Any SOP on operation and maintenance is defined?  
**NO**
- Any Energy conservation devices installed?  
**NO**
- Any alternative Energy source is installed?  
YES SPV GCRT

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- e. Does the SWITCH OFF Drills conducted regularly?  
**NO**
- f. Are electronic and smart devices run on power saving mode? (computers, Etc)  
**YES**
- g. Does electronic & other equipment run standby mode? How many hours?  
**NO, Unnecessary energy / power consumption is prohibited.**
- h. Does institute perform Water quality monitoring?  
**NO**
- i. Have you installed rain water harvesting system?  
**YES**
- j. Any SOP on operation and maintenance of plumbing system is defined?  
**NO**
- k. Any SOP on Water utilization is defined?  
**NO**
- l. Does institute record water usage?  
**NO**
- m. Are rooms well ventilated?  
**YES**
- n. Does institute perform Air quality monitoring?  
**NO**
- o. Any vehicles used? Type of Fuel? Quantity of fuel consumed?  
**NO**
- p. Any third-party agreements for
  - i. E-waste Pick-up agreements  
**NO**
  - ii. Paper waste Pick-up agreements  
**NO**
  - iii. Bio hazardous waste Pick-up agreements.  
**NA**
  - iv. Chemical Pick-up agreements  
**NO**



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### 5.5. Carbon Footprint

#### 5.5.1. Emission

Impact		
Electricity Consumption	217934	KWh
Co2 Generated	239727	Kg

#### 5.5.2. Sequestration

SL No	Method	Quantity	Saving
1	Plantation Trees	229	5028.84
2	Recycling Papers	0	0
3	Solar	100000	110000
	<b>TOTAL</b>		<b>115028.8</b>

#### 5.5.3. Observations

Carbon Footprint of Institute is 68.50 per person

Carbon Sequestration of Institute is 32.86 per person

#### 5.5.4. Recommendations

Carbon Sequestration is observed Very Less than sufficient.

Increase Green Measures.

**No Record prepared and preserved by the college for 2022-23**



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### **6. Recommendations**

#### **PART A GENERAL**

1. It is recommended that institute shall prepare and maintain Emergency evacuation Plan has to be prepared, preserved and made aware to occupants..
2. It is recommended that institute shall prepare and maintain Electrical SLD.
3. It is recommended that institute shall prepare and maintain Details Electrical Control Panels.
4. It is recommended that institute shall prepare and maintain Details of Transformer.
5. It is recommended that institute shall prepare and maintain Details of Generator (DG-Set).
6. It is recommended that institute shall prepare and maintain Details of UPS/Inverters
7. It is recommended that institute shall prepare and maintain Details of Renewable systems (Solar)
8. It is recommended that institute shall prepare and maintain Registers of Records
9. It is recommended that institute shall prepare and maintain Nameplate Data of all equipment
10. It is recommended that institute shall prepare and maintain Manuals of all equipment
11. It is recommended that institute shall preserve Electricity, Water and other utility bills.
12. It is recommended that institute shall prepare and maintain Log of Electrical works/accidents
13. It is recommended that institute shall provide safety equipments like Gloves, Shoes, Etc. for the workers.
14. It is recommended that institute to assign anybody responsible to maintain data regarding audits, management and recommendations since It is found that institute is lagging in data keeping.
15. It is recommended that institute shall undergo Energy and Green Audit Every two years.



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### PART B ENERGY AUDIT

1. It is recommended that to reduce contract demand; Expected Rs 3,00,000 to 3,50,000 annual saving.
2. It is recommended that to install ASVG system for power factor correction; Expected Rs 1,50,000 to 1,75,000 annual saving.
3. It is recommended that to prepare feasibility and plant to replace regular fans with BLDC fans. Expected Rs 1,00,000 to 1,25,000 annual saving.
4. It is recommended that to prepare feasibility and plant to replace regular FTLs with LED Lights. Expected Rs 1,00,000 to 1,25,000 annual saving.
5. It is recommended that to undergo detail energy audit considering following points
  - a. All the connected loads in each room has to be listed down
  - b. All rooms working time has to be noted down.
  - c. Any extra activity such as program/function/gathering, Etc. has to be recorded in terms of connected load, extra load, running time.
  - d. Extra consumption in particular month and reason for the same.
  - e. Manual and remote monitoring of consumption.
6. It is recommended that data of Renewable Energy source installed and it's impact on consumption is to be observe, record and maintain either manually or automatically. Also the details of installed system to be procured from vendor and preserved.
7. It is recommended that Keep AC temperature to 26<sup>0</sup> C.
8. It is recommended that to Clean Luminaries, Fans, ACs regularly to increase efficiency.
9. It is recommended that Prepare and observe SOPs for maintenance of equipments.
10. It is recommended that Following tests are to be conducted at-least annually
  - Neutral Current
  - Load Unbalance
  - Earth Resistance
  - Insulation Resistance
  - Illumination
  - Power Quality
  - Thermography



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### PART C GREEN AUDIT

1. It is recommended that institute shall use environment friendly cleaning agents to clean the premises.
2. It is recommended that Institute may implement biogas plant from sewage waste.
3. It is recommended that Institute practices waste management but efforts are scattered, institute shall implement Target oriented waste management system.
4. It is recommended that Institute should participate in events/schemes like Swachh Bharat for awareness and importance of cleaning.
5. It is recommended that Institute to use kitchen waste water for gardening.
6. It is recommended that Institute to install waste water recycling plant.
7. Institute shall calculate and install Additional Rain water Harvesting Plant of maximum possible capacity with help of Professionals.
8. It is recommended that Institute to install Energy & environment monitoring systems
9. It is recommended that institute shall implement Target oriented Energy management system.
10. It is recommended that institute shall implement Sensor based lights in passage.
11. It is recommended that institute shall have available Medical officer or to be empanelled nearby physician for emergency support.
12. It is recommended that institute shall undertake electrical safety Audit.
13. It is recommended that institute shall Print, Stick and maintain Save energy and Save water Posters at prime locations, near point of supplies, backside of the door, etc to create awareness of conservation, within the campus.
14. It is recommended that institute shall Prepare Stick and maintain Emergency contact number list consisting numbers of all local authorities such as Police, Fire service, Hospitals, Etc. as well as principal and other welfare team members.
15. It is recommended that institute shall designate people and they shall undergo Disaster Management Training.
16. It is recommended that Avoid Draft printing, use email/Whatsapp maximum.
17. It is recommended that institute shall prepare observe and undergo Code of conducts and Standard Operating Procedures for Energy, Green and Environment management system.
18. It is recommended that institute shall arrange Exhibitions and identification programs for students and locals to understand medicinal plants.
19. It is recommended that institute shall start a planting drive with students outside campus.
20. It is recommended that institute shall gift small plants or seeds/seed-balls to students leaving or going to native place and encourage them to plant at their own premises.

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Solar Rooftop EPC | New Electric Connections| Meters (New, Shifting, additional)  
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### **PART D ENVIRONMENT AUDIT**

- i. It is recommended that institute shall plant and Maintain at-least 2 Full grown trees per two people or 5600 Trees.
- ii. It is recommended that institute shall consider the scope to increase in Tree diversity; Plants like Tulsi, Camphora, Etc. can be planted for getting more pollution-free atmosphere. Also to increase the quality more greenery can be implemented. This can be done through gardening in empty places, terrace gardening and Green walls.
- iii. It is recommended that institute shall observe Quality from Filter output. To maintain the quality, water testing has to be done in every season (after every four months). A standard operating process has to be defined, documented and observed for tank and pipeline cleaning and maintenance.
- iv. It is recommended that institute shall quantify the output of Rain Water Harvesting System and increase the capacity to mitigate shortfall.
- v. It is recommended that institute shall Install Meters to measure actual demand and usage of water.
- vi. It is recommended that institute shall install RO based water filter/purifiers.
- vii. It is recommended that institute shall maintain accurate level, windows to be cleaned regularly, obstacles on windows to be moved, Proper capacity and efficiency of luminaries to be used and luminaries also to be cleaned once in a week.
- viii. It is recommended that institute shall make a MOU with E-waste recycling institute to recycle E-waste.
- ix. It is recommended that institute shall make a MOU with Paper waste recycling institute to recycle Paper waste.
- x. It is recommended that institute shall measure and record wastage Data for all types of wastage generated.
- xi. It is recommended that institute shall Prepare, maintain and follow SOP for wastage and recycling.
- xii. It is recommended that institute shall Prepare, maintain and follow SOP for all types of maintenance.



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### **7. Disclaimer**

The report is generated from data, information, answer to asked questions, standards and procedures defined by different and concerned authorities time to time, available site condition, weather condition, operational and availability conditions provided by beneficiary on the day of survey. If any changes on above said measures on any other parameters affecting these measures may lead to change, alter, in-corrections even falsifying calculations, results, recommendations and suggestions. The values, figures, amounts mentioned are indicative to the site situation and condition; it may not reflect each and every aspect of it. The report is generated restricted to given scope and available conditions and measures.

### **8. Conclusion**

We hereby conclude report for "Energy Audit, Green Audit and Environment Audit" of the Work done under scope of work for "Govt. M.H. College of H. Sc. & Sc. for Women (Autonomous) Jabalpur, Madhya Pradesh" Please study it thoroughly and implement recommendations and suggestions at earliest.

# ANNEXURE-I

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## DETAILS OF INFRASTRUCTURE

**Dr. Girish Verma & Team**

**E-WASTE COLLECTION BOX:**

E-Waste can be described as consumer and business electronic equipment that is near or at the end of its useful life. This makes up about 5% of all municipal solid waste worldwide but is much more hazardous than other waste because electronic components contain cadmium, lead, mercury, and polychlorinated biphenyls (PCBs) that can damage human health and the environment.

**DRY-WASTE COLLECTION BOX:****WET-WASTE COLLECTION BOX:****PAPER-WASTE COLLECTION BOX:**

The recycling of paper is the process by which waste paper is turned into new paper products. It has a number of important benefits: It saves waste paper from occupying homes of people and producing methane as it breaks down. Because paper fibre contains carbon (originally absorbed by the tree from which it was produced), recycling keeps the carbon locked up for longer and out of the atmosphere. Around two-thirds of all paper products in the US are now recovered and recycled, although it does not all become new paper. After repeated processing the fibres become too short for the production of new paper, which is why virgin fibre (from sustainably farmed trees) is frequently added to the pulp recipe.

### SOLAR ENERGY:

Solar energy is radiant light and heat from the Sun that is harnessed using a range of technologies such as solar power to generate electricity, solar thermal energy (including solar water heating), and solar architecture. It is an essential source of renewable energy, and its technologies are broadly characterized as either passive solar or active solar depending on how they capture and distribute solar energy or convert it into solar power. Active solar techniques include the use of photovoltaic systems, concentrated solar power, and solar water heating to harness the energy. Passive solar techniques include orienting a building to the Sun, selecting materials with favorable thermal mass or light-dispersing properties, and designing spaces that naturally circulate air.



Sr. No.	Description	Unit
1	Capacity of Solar Rooftop	80 KW
2	Average Daily Generation	320 Kwh
3	Average 20% Generation to Grid through Net Meter	64 Kwh
4	Real Time Daily Consumption from Solar Rooftop System	256 Kwh/day
5	Yearly Units Consumption from Solar System (256 X 365Days)	93440 Units
Total Yearly Unit Consumption = (Units Consumed From MPMKVVCL + Solar Roof Top System) = (193738 + 93440) = 287178 Units		

**LED LIGHTS:**

Light Emitting Diodes (LEDs) are used to illuminate objects and places. They have many advantages over traditional bulbs, including:

- Energy efficiency
- Temperature
- Durability
- Environmental impact
- Dimming

**GREENARY:**

Reviews periodically the list of trees planted in the garden, allot numbers to the trees and keep records. Give scientific names of the trees. Promote environmental awareness as a part of course work in various curricular areas, independent research projects and community service. Create awareness of environmental sustainability and takes actions to ensure environmental sustainability. 'The Green Campus' that actively promote the various projects for the environment protection and sustainability. The purpose of the audit was to ensure that the practices followed in the campus are in accordance with the Green Policy adopted by the institution. The methodology include: preparation and tilling up of questionnaire, physical inspection of the campus, observation and review of the documentation, interviewing key persons and data analysis, measurements and recommendations- It works on the several facets of Green Campus' including Water Conservation, Tree Plantation. Waste Management, Paperless Work. Alternative Energy and Mapping of Biodiversity with this in mind, the specific objectives of the audit are to evaluate the adequacy of the management control framework of environment sustainability as well as the degree to which the Departments are in compliance with the applicable regulations policies and standards. It can make a tremendous impact on student health and learning college operational costs and the environment. The criteria, methods and recommendations used in the audit were based on the identified risks.

## PLANTATION: (TREES AND PLANTS IN CAMPUS)



## RAIN WATER HARVESTING:



Use of polythene is strictly prohibited in the college campus

College campus has been declared Plastic free. At present, 15 water harvesting pits has been constructed in the college campus. A total of 97 plant species has been identified in the campus. College campus is full of greenery which provides a healthy environment to the students.

### **COMPOSTING:**



The institute has adopted vermin-culture composting in hostel & garden on 300 sq.ft. land. The main purpose of this is to reduce disposable waste in the college campus. After complete process of vermin-composting, it is used as manure in the garden and lawns. Awareness program among farmers is also conducted in the village nearby by NSS Units.

### **CLEANING:**



## SEMINARS

[illegible]

## SWACHH BHARAT CAMPAIGN



## HEALTH/MEDICAL FACILITIES



## WATER RESOURCES



## RO/ WATER

Reverse osmosis (RO) is a water purification process that removes ions, unwanted molecules and larger particles from drinking water using a partially permeable membrane. As a result, the solute is kept on the membrane's pressurized side and the pure solvent is allowed to pass to the other side.



# GREEN AUDIT CERTIFICATE

This is to certify that Green Audit has been successfully completed by M/s. Saur Engineers & Consultants Pvt. Ltd. Empanelled Energy Auditor (CLASS-A) MEDA, Government of Maharashtra and an ISO 14001:2015 company and suggestions for improvements have been given. The Audit activity has been executed for beneficiary with following Details:-

**Govt. M. H. College of Home Science & Science for Women (Autonomous) Jabalpur  
Napier Town, Jabalpur, Madhya Pradesh**

No. GA257B

Date of Audit: 15/01/2024

Assessment Period: 2022-2024 Valid till: 14/01/2025



ENERGY AUDITOR "CLASS-A" No. EA-28  
SAUR ENGINEERS & CONSULTANTS PVT. LTD.  
Plot No. 108, D-8, Ganga-1, Borivali (W),  
Mumbai - 400 081.

**Saur Engineers & Consultants Pvt. Ltd.**

Registration No: EA-28 MEDA/ECN/2023-24/Class-A/EA 28

Empanelled Energy Auditor-CLASS A, MEDA, Government of Maharashtra

The report is generated from data, information, answer to asked questions, standards and procedures defined by different and concerned authorities time to time, available site condition, weather condition, operational and availability conditions provided by beneficiary on the day of survey. If any changes on above said measures on any other parameters affecting these measures may lead to change, alter, in-corrections even falsifying calculations, results, recommendations and suggestions. The values, figures, amounts mentioned are indicative to the site situation and condition; it may not reflect each and every aspect of it. The report is generated restricted to given scope and available conditions and measures.

# ENVIRONMENT AUDIT CERTIFICATE

This is to certify that Environment Audit has been successfully completed by M/s. Saur Engineers & Consultants Pvt. Ltd. Empanelled Energy Auditor(CLASS-A) MEDA, Government of Maharashtra and an ISO 14001:2015 company and suggestions for improvements have been given. The Audit activity has been executed for beneficiary with following Details:-

**Govt. M. H. College of Home Science & Science for Women (Autonomous) Jabalpur  
Napier Town, Jabalpur, Madhya Pradesh**

No. ENA257B

Date of Audit: 15/01/2024

Assessment Period: 2022-2024 Valid till: 14/01/2025



ENERGY AUDITOR "CLASS-A" No. EA-28  
SAUR ENGINEERS & CONSULTANTS PVT. LTD.  
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