

Yeshwantrao Chavan College of Engineering, Nagpur

**[Environmental Audit YCCE
2016-17]**



Report By:
Global Scientific Inc.
Nagpur



GLOBAL SCIENTIFIC INC.

ISO 9001:2015

Asidham, Opp Gomti Appartment W.H.C Road, Law College Square ,Nagpur

ENVIRONMENTAL AUDIT CERTIFICATE

This Certificate has been awarded to

Yeshwantrao Chavan College of Engineering
Hingna Rd ,Wanadongri ,Nagpur ,Maharashtra



for 2016-2017

In Recognition of the Organization Efforts for Sustainable Management and compliance of Environmental Audit and maintenance of the Institution.

Dr. Anagha Patil
Team Lead
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Dr. Smeeta Bhabra
Director
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Ms. Aishwarya Deshmukh
Lead Auditor-TUV Nord
Global Scientific Inc.
Cert. No: 35273988 14



Certificate of Registration

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(INDIA)**

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CERTIFICATE NO. : PCMS/QMS/2222 - 2014

ISSUED ON : 14/07/2014

VALIDITY DATE : 13/07/2017

1ST SURVEILLANCE DUE ON: 14/06/2015

2ND SURVEILLANCE DUE ON: 14/06/2016

THE VALIDITY OF CERTIFICATE IS SUBJECT TO REGULAR SURVEILLANCE AUDIT ON OR BEFORE ABOVE MENTIONED DATES AND IT'S ONLY VALID AFTER SUCCESSFUL SURVEILLANCE WITH CONTINUATION LETTER ISSUED BY PCMS

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Certificate

This is to certify that a “**Environmental Audit**” for Yeshwantrao Chavan College of Engineering, Hingna Nagpur has been conducted in 2017 to assess the Environmental Components: Water, Air, Soil, Weather and Climate, Vegetation and Fauna, Sound Level, Energy, Waste- Institutional municipal solid Waste and Wastewater and the Eco-friendly initiatives implemented within the college campus.

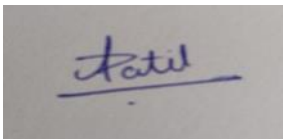
Place: Nagpur

Date: 20/10/2017



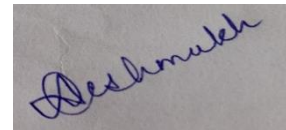
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Introduction

Yeshwantrao Chavan College of Engineering, Nagpur is established in the year 1984. It is named in the memory of Late Shri. Yeshwantrao Chavan, the Great Patriot who was first Chief Minister of Maharashtra and the former Deputy Prime Minister of India.

YCCE is one of the premier college of Engineering in the Vidarbha region of Maharashtra. The goal of Institution is to provide excellent educational environment to the students at both undergraduate and postgraduate levels. The institute extends its expertise in engineering and technological requirements to various public and private sector organizations. The institute aims to transform students into responsible and resourceful leaders in their profession.

The college is becoming a most sought after destination by the students who are aspiring to pursue higher technical education and attain placements in the competitive software and core industries. The institution accentuates on instilling significant professional education for crafting ambitious engineers who would ultimately possess noteworthy qualities to become leaders in their opted profession. The highly educated and well-experienced faculty members focus on inculcating excellent education for creating commendable engineers.



The infrastructure and the atmosphere of the institute are completely oriented towards boosting the substantial teaching-learning schema promoting the development of students' attentiveness towards learning. These factors have ultimately made YCCE as the most ideal and preferred **engineering college in Central India**. The institute is awarded with 'A' Grade of by **National Assessment and Accreditation Council (NAAC)** for a period of five years 2016-2021.



The Yeshwantrao Chavan College of Engineering, Nagpur is geographically located about at 21.096742 latitude and 78.979402 longitude and is 14.7 Km from Nagpur airport and railway station, on the Nagpur Hingna road. The college campus is located on a lush green hill top area and is benefitted with the elevation from adjacent street pollution which leads to reduced air pollution in the college premises which was a barren land 39 years back.



College Address

Yeshwantrao Chavan College of Engineering

Hingna Road,
Wanadongri, Nagpur- 441110

| | |
|---------------------------------|--|
| State | Maharashtra |
| Phone | +91-7104-295083, 295085 |
| Phone (Principal office) | +91-7104-295083, 09764996477 |
| Fax | +91-7104-242376 |
| Hostel | +91-7104-242840 |
| Website | www.ycce.edu |
| Email | principal@ycce.edu , info@ycce.edu |

About College

- The college is guided by the Academic Advisory Board consisting of eminent academicians from the prestigious technical institutes in India and USA. The college is having well qualified blend of experienced senior faculty members and the young faculties as well.
- Yeshwantrao Chavan College of Engineering (YCCE) is renowned for Engineering Education and Research. For over 36 years, it has successfully nurtured young engineering professionals, becoming a sought-after destination for students aspiring to higher technical education and placement in the competitive software and core industries. It offers a rare combination of respected scholars, international footprint and interdisciplinary studies
- A premier institute, YCCE became one of the few selected well-performing colleges for Government of India's Technical Education Quality Improvement Program (TEQIP Phase I), funded by the World Bank. With the TEQIP financial aid, the Institution has created state-of-the-art infrastructure, laboratories, computational facilities, library etc
- YCCE has become the First private engineering college to acquire 'Autonomous' status in Central India. Under the new status, the first batch of students commenced their B.E. and M.Tech. Courses from the academic session 2010-2011. In the year 2016-17, UGC peer team visited YCCE & granted 'Extension of Autonomy' for 6 years (2016-2022).
- Quality assurance through Accreditation and Re-Accreditation of UG & PG programs done by National Board of Accreditation (NBA), New Delhi Since 2003
- Accreditation with 'A' Grade by UGC National Assessment and Accreditation Council (NAAC), Bangalore
- Received ISTE National Award 2014 for being the "Best Private Engineering College" in the Country.
- Awarded 'A' Grade by the Government of Maharashtra in the year 2002-2003.
 - Innovation Gallery for displaying innovative UG/PG project work of students
 - Accreditation by repeated corporates/industries like TCS, Capgemini, Wipro etc. for enhancing student's placement and internship.

Visionary

Hon'ble Shri Dattaji Meghe is the architect of **Nagar Yuwak Shikshan Santha, Nagpur**. He has been the guiding star in spreading the light of education. His can-do-more attitude brought about an intellectual revolution that has transformed the social, educational, economic and cultural life of rural Maharashtra.

One lamp that lit strongly and firmly with a great vision of spreading the light of wisdom is our Hon'ble Shri Dattaji Meghe the Chairman of Nagar Yuwak Shikshan Sanstha & Founder Chancellor of Datta Meghe Institute of Medical Sciences University is in active public life for more than 35 years. He represented the people of Maharashtra in Lok Sabha for 3 consecutive terms & was the Member of Parliament (Rajya Sabha).

He strongly believed that quality Education & Health can only bring the true transformation of the huge human resources of our nation.

In pursuit of Chairman of YCCE social commitment, a modest beginning was made by starting a small educational institute **36** years ago, which has grown up into an educational empire covering almost all faculties of education spread all over Maharashtra state.

This educational society has established **27** institutions right from pre-primary to postgraduate levels covering various faculties like Medical Sciences, Pharmacy, Engineering, Social Science, Commerce, Science, Physical Education and Performing Arts. The Society is like a giant joint-family of about **30000** students and about **1500** highly educated and skilled staff. Our founder Chairman Shri. Dattaji Meghe insists on good quality education, discipline and welfare of the students and the staff.

All these institutions are provided with highly qualified and well trained staff, well equipped laboratories, spacious libraries, playgrounds, canteens and buses for transportation of students and staff. The performances of the students in examinations are always excellent. It is profound desire and ardent endeavor of our founder to evolve an educational process involving modern technology and knowledge with preservation of our cultural heritage.

YCCE stands by its motto of becoming a leader in imparting quality education and training in engineering. It also contributes to the ever-expanding knowledge and skills in the professional

environment through scientific inquiry, applied research and innovation to play a vital role in socio economic progress. The management and faculty are fully committed to generate excellence in academics and to attain the sacred goal of making the students realize their full potential in all dimensions of their personality.

Leadership

This quote very well goes with our young and dynamic leaders Shri. Sagar Meghe and Shri. Sameer Meghe, who were empowered with knowledge and inspired by a tradition of accomplishment have with their focused expertise, far-reaching vision and strong commitment to humanity have given the new height to YCCE. This in turn is creating students, scholars and technocrats who in turn are contributing meaningfully to the service of mankind and the profession.

Under their great leadership, YCCE students learn not only to navigate and translate the engineering sciences in the classroom and laboratories but also to apply their developing knowledge and understanding in practical engineering applications in innovative ways.



Vision

To become the most preferred institution providing innovative research and value based, professional education for the society at large.



Mission

YCCE is committed to:

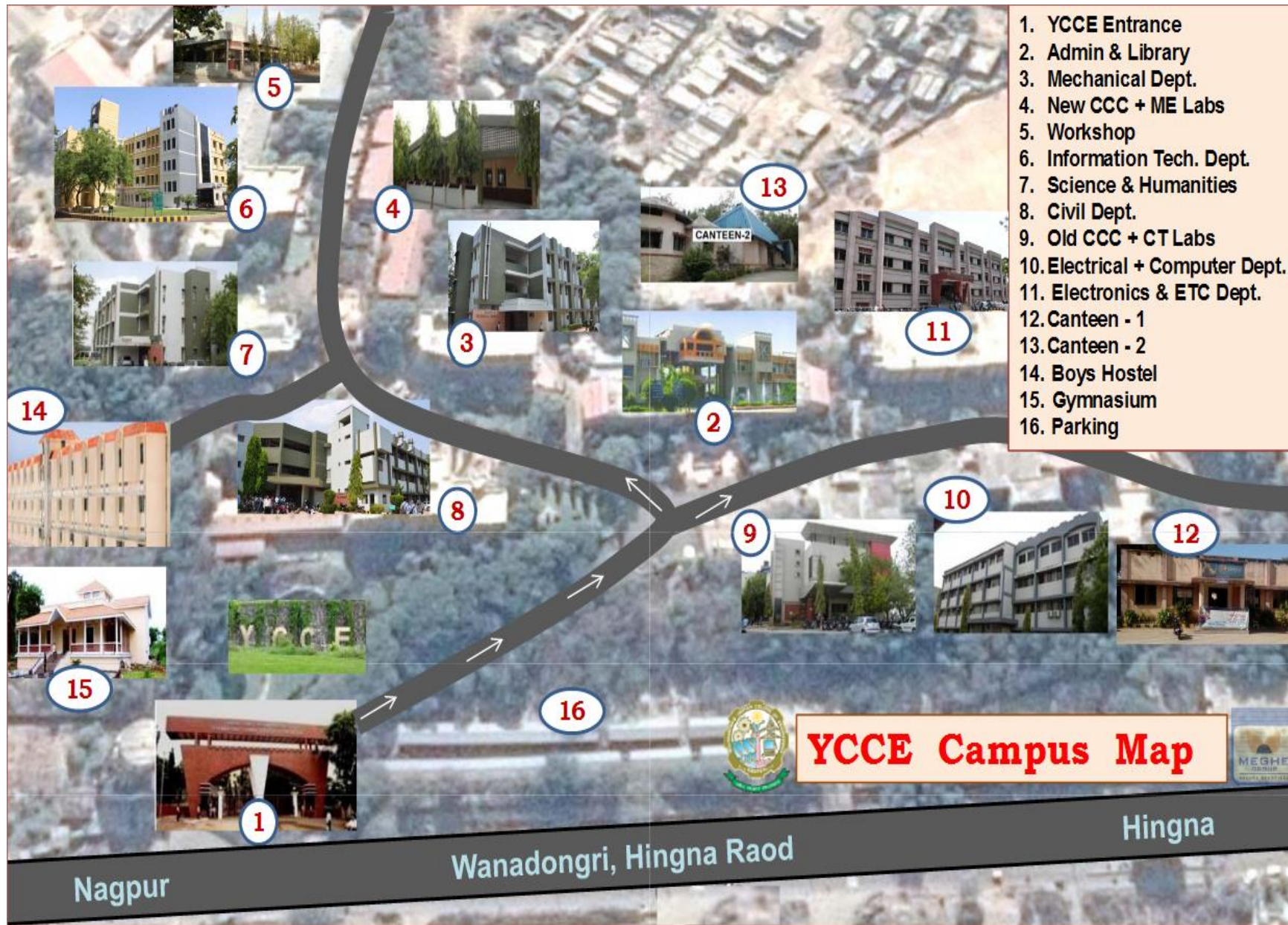
- Attract best talent and create best learning ambience
- Practice-innovative teaching-learning & research
- Integrate Industry-Institute Collaborations
- Nurture students towards holistic development and choicest careers

Objectives of Environmental Audit:

The main aim objectives of this Environmental Audit are to assess the environmental quality and the management strategies being implemented in Yeshwantrao Chavan College of Engineering, Nagpur.

The specific objectives are:

- 1) To assess the quality of the Water Component and Soil Component in the YCCE college campus.
- 2) To track the Weather & Climate parameters around the campus and monitor Ambient Air Quality parameters of YCCE.
- 3) To monitor the Energy Consumption pattern (Electricity & Solar Energy) of the college.
- 4) To quantify the Solid Waste Generation and Management Plans in the YCCE campus.
- 5) To assess the Carbon footprint potential drawn Electricity and Solar Energy Consumption of the college.
- 6) To identify the gap areas and suggest recommendations to improve the Green Campus status of the Yeshwantrao Chavan College of Engineering, Nagpur.



1. YCCE Entrance
2. Admin & Library
3. Mechanical Dept.
4. New CCC + ME Labs
5. Workshop
6. Information Tech. Dept.
7. Science & Humanities
8. Civil Dept.
9. Old CCC + CT Labs
10. Electrical + Computer Dept.
11. Electronics & ETC Dept.
12. Canteen - 1
13. Canteen - 2
14. Boys Hostel
15. Gymnasium
16. Parking

YCCE Campus Map

Nagpur

Wanadongri, Hingna Raod

Hingna

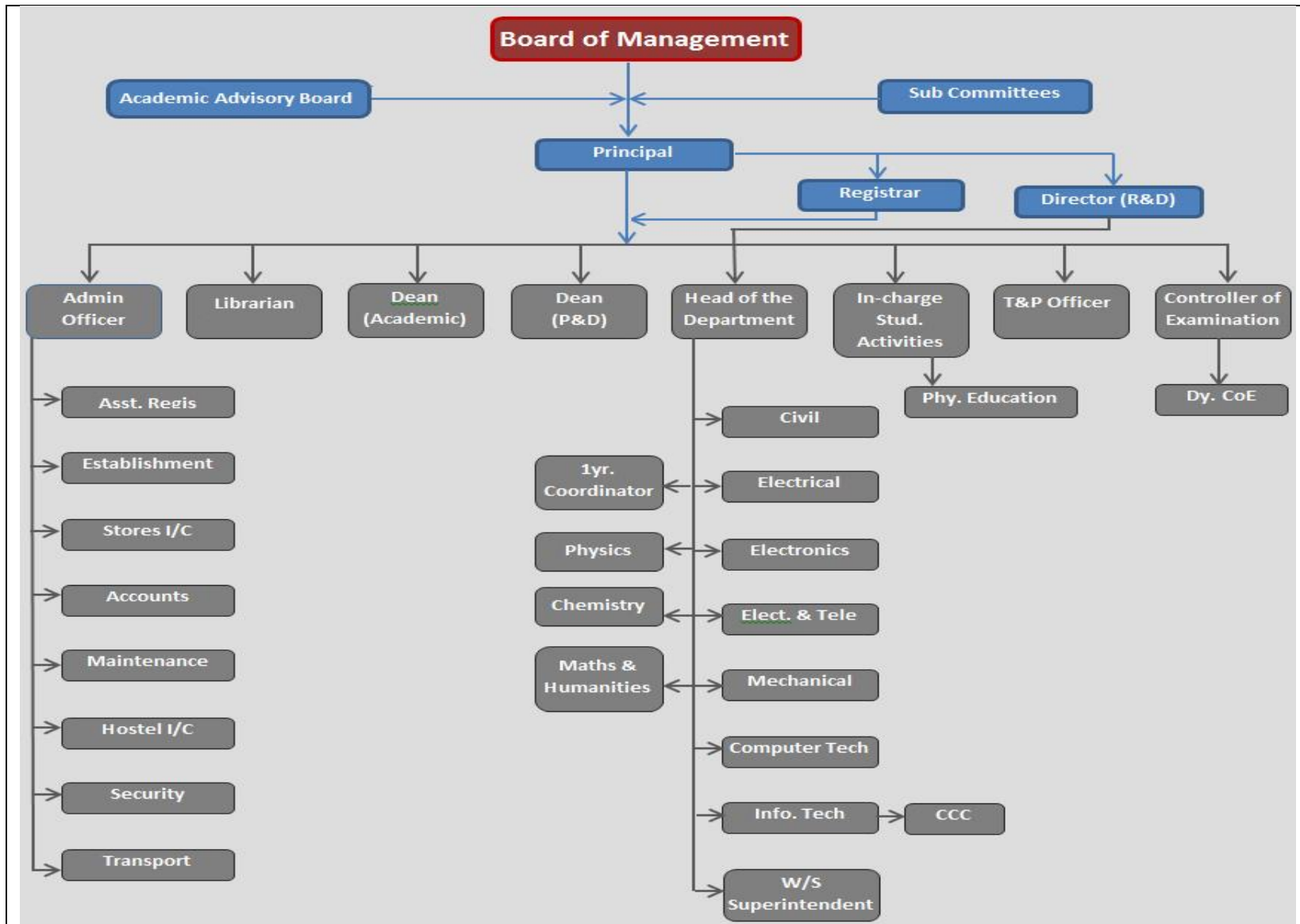


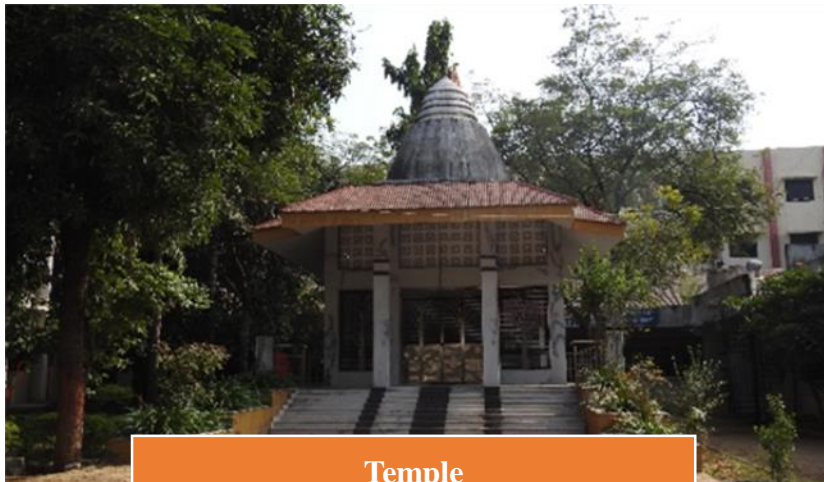
Image No. 1: Organization Structure of YCCE



Main Entrance



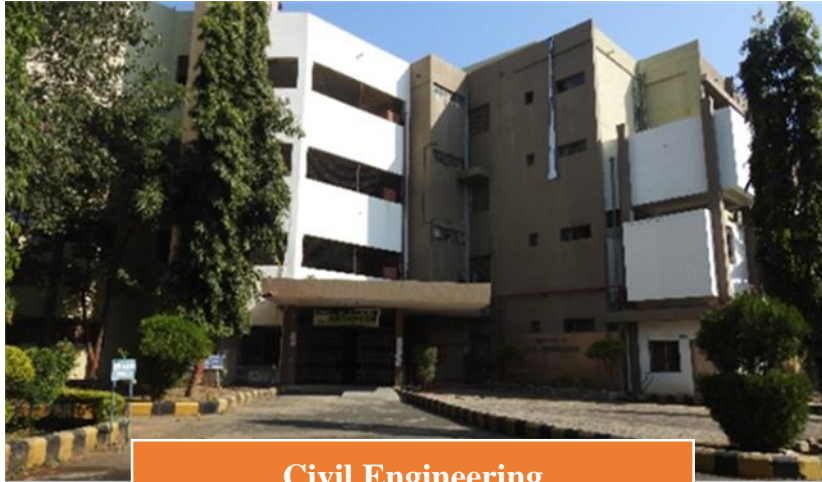
Administration Building and Library



Temple



Parking



Civil Engineering



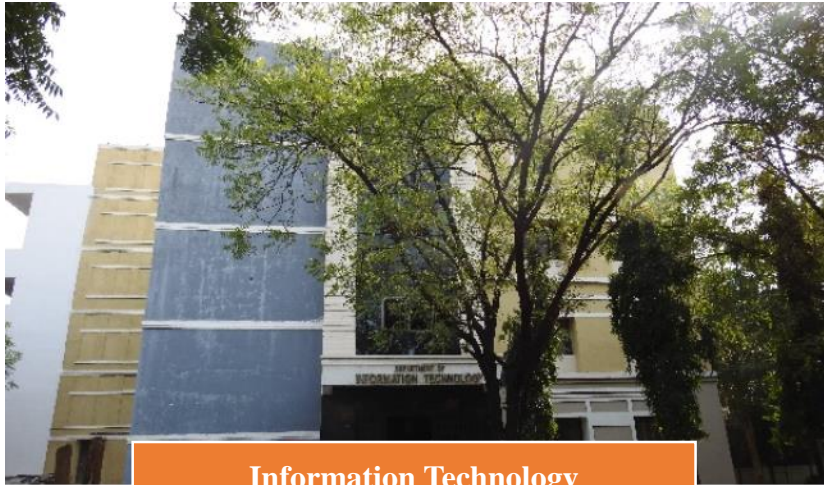
Workshop (Civil)



Mechanical Engineering



Electronics and Telecommunication



Information Technology



Old CCC+Computer Technology Labs



New CCC+Mechanical Engineering Labs



Workshop



Computer Technology and Electrical Engineering



Applied Science and Humanities

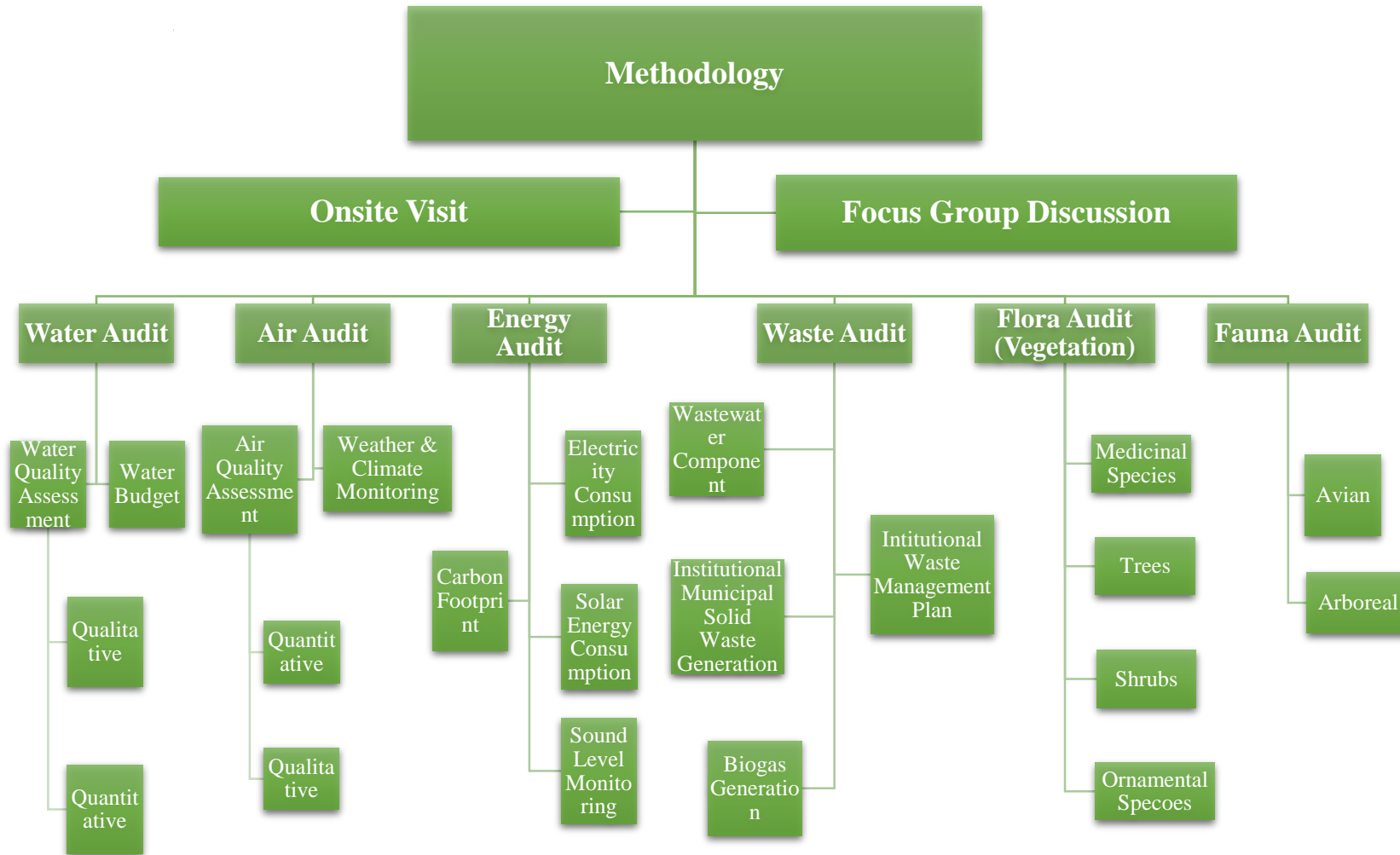


Canteen 1



Stationary & Maintenance Department

Image No: 2: Study Methodology adopted to conduct the Green Audit of the Institution



| | |
|----------------------|---|
| Campus Area | : 14 Acres |
| Location | : On a hill top, lush green environment with picturesque settings, on Nagpur-Hingna Road. |
| Accessibility | : 15 Kms from Nagpur Railway station and 14 Kms from Airport. |

Area segments: Total Built-up and Green Area

Table No .1: Details of Total Built-up and Green Area

| Sr. No. | Description | Area |
|----------------|--------------------|-----------------|
| 1) | Campus Area | 56,656 sq. m |
| 2) | Built-up Area | 37,702.76 sq. m |
| 3) | Vegetation Cover | 13,359 sq. m |
| 4) | Parking + Roads | 14,307 sq. m |

Table No.2: Department wise built-up Area

| Sr. No. | Name of Department Building | Floors | Built-up Area (Sq.m) |
|-----------------------------|------------------------------------|----------------|-----------------------------|
| 1 | Administrative & Library Building | G+3 | 4146.054 |
| 2 | Civil Building | G+3 | 3619.668 |
| 3 | Civil Lab Shed | G.F. | 513.86 |
| 4 | Electrical Building | G+3 | 5229.631 |
| 5 | Mechanical Building | G+3 | 3229.63 |
| 6 | Mechanical Lab Shed | G.F. | 1253.736 |
| 7 | Workshop Shed | G.F. | 1403.56 |
| 8 | Science Building | G+3 | 3410.754 |
| 9 | Electronics Building | L. G.F.+ G + 2 | 6818.75 |
| 10 | Central Computer Centre Building | G+1 | 1094.784 |
| 11 | IT Building | G+3 | 2977.811 |
| 12 | Canteen-I | G.F. | 241.041 |
| 13 | Canteen - II | G.F. | 298.084 |
| 14 | Exam Control Building | G+1 | 1250.412 |
| 15 | College Building (Block-T) | G+3 | 2214.985 |
| Total Built- up Area | | | 37702.76 |



Satellite Imagery No. 1: Builtup Area

Infrastructure:**Table No.3: Details of Infrastructure**

| Sr. No. | Description | Nos. |
|----------------|----------------------|-------------|
| 1) | Total Classroom | 76 |
| 2) | Total Tutorial rooms | |
| 3) | Total Labs | 92 |
| 4) | Drawing Hall | 3 |
| 5) | Workshop | 5 |
| 6) | Seminar Hall | 6 |
| 7) | Computer Centre | 5 |
| 8) | Innovation Lab | 2 |

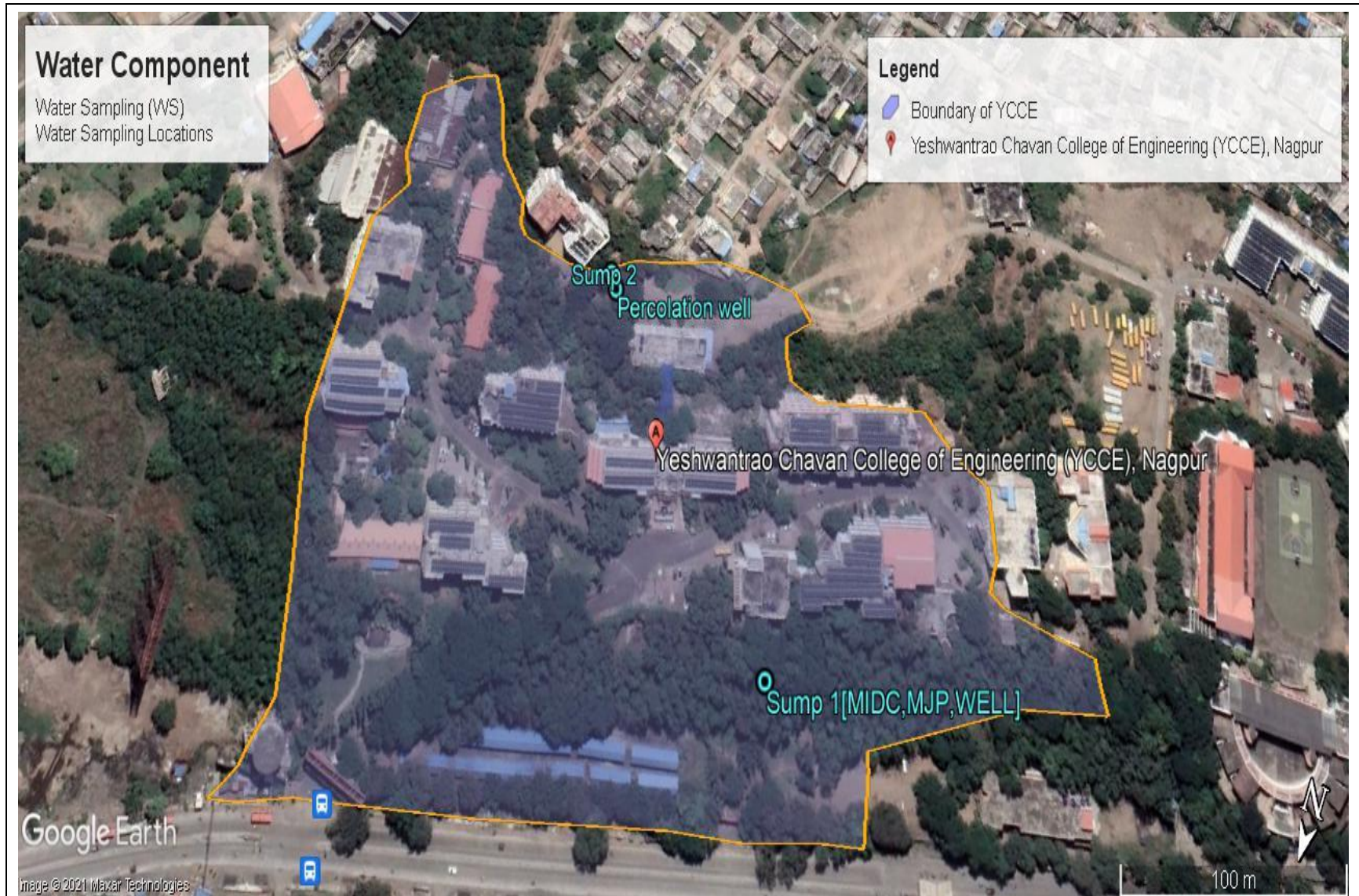
I] Water Audit

Water plays a significant role in maintaining the human health and welfare. Clean drinking water is now recognized as a fundamental right of human beings. Around 780 million people do not have access to clean and safe water and around 2.5 billion people do not have proper sanitation. As a result, around 6–8 million people die each year due to water related diseases and disasters. In the today world, the water use in household supplies, public supplies is commonly defined as domestic water. This water is processed to be safely consumed as drinking water and other purposes.

The major Drinking water sources at YCCE are:

- 1) Maharashtra Jeevan Pradhikaran
- 2) Maharashtra Industrial Development Corporation
- 3) Groundwater Well
- 4) Borewell-2 Nos.

The water sample was collected by purposive sampling method from common sump and subjected for the physico-chemical and biological characterization for qualitative and quantitative estimation of water within the campus.



Satellite Imagery No. 2: Water sources within YCCE

Indian Standard DRINKING WATER — SPECIFICATION

Table No. 4: Organoleptic and Physical Parameters

(Foreword and Clause 4)

| Sr. No. | Characteristic | Requirement (Acceptable Limit) | Permissible Limit in the Absence of Alternate Source | Remarks |
|---------|------------------------------------|--------------------------------------|---|--|
| i) | Colour, Hazen units, <i>Max</i> | 5 | 15 | Extended to 15 only, if toxic substances are not suspected in absence of alternate sources a) Test cold and when heated |
| ii) | Odour | Agreeable | Agreeable | — |
| iii) | pH value | 6.5-8.5 | No relaxation | b) Test at several dilutions |
| iv) | Taste | Agreeable | Agreeable | Test to be conducted only after safety has been established |
| v) | Turbidity, NTU, <i>Max</i> | 1 | 5 | — |
| vi) | Total dissolved solids, mg/l, | 500 | 2,000 | — |

NOTE — It is recommended that the acceptable limit is to be implemented. Values in excess of those mentioned under ‘acceptable’ render the water not suitable, but still may be tolerated in the absence of an alternative source but up to the limits indicated under ‘permissible limit in the absence of alternate source’ in col 4, above which the sources will have to be rejected.

Table No. 5: General Parameters Concerning Substances Undesirable in Excessive Amounts*(Foreword and Clause 4)*

| Sr. No. | Characteristic | Requirement (Acceptable Limit) | Permissible Limit in the Absence of Alternate Source | Remarks |
|----------------|--|---|---|----------------|
| 1) | Aluminium (as Al), mg/l, <i>Max</i> | 0.03 | 0.2 | — |
| 2) | Ammonia (as total ammonia- N), mg/l, <i>Max</i> | 0.5 | No relaxation | — |
| 3) | Anionic detergents (as MBAS) mg/l, <i>Max</i> | 0.2 | 1.0 | — |
| 4) | Barium (as Ba), mg/l, <i>Max</i> | 0.7 | No relaxation | — |
| 5) | Boron (as B), mg/l, <i>Max</i> | 0.5 | 1.0 | — |
| 6) | Calcium (as Ca), mg/l, <i>Max</i> | 75 | 200 | — |
| 7) | Chloramines (as Cl ₂), mg/l, <i>Max</i> | 4.0 | No relaxation | — |
| 8) | Chloride (as Cl), mg/l, <i>Max</i> | 250 | 1,000 | — |

| | | | | |
|-----|---|------|---------------|--|
| 9) | Copper (as Cu), mg/l, <i>Max</i> | 0.05 | 1.5 | — |
| 10) | Fluoride (as F) mg/l, <i>Max</i> | 1.0 | 1.5 | — |
| 11) | Free residual chlorine, mg/l, <i>Min</i> | 0.2 | 1 | To be applicable only when water is chlorinated. Tested at consumer end. When protection against viral infection is required, it should be minimum 0.5 mg/l |
| 12) | Iron (as Fe), mg/l, <i>Max</i> | 0.3 | No relaxation | Total concentration of manganese (as Mn) and iron (as Fe) shall not exceed 0.3 mg/l |
| 13) | Magnesium (as Mg), mg/l, <i>Max</i> | 30 | 100 | — |
| 14) | Manganese (as Mn), mg/l, <i>Max</i> | 0.1 | 0.3 | Total concentration of manganese (as Mn) and iron (as Fe) shall not exceed 0.3 mg/l |
| 15) | Mineral oil, mg/l, <i>Max</i> | 0.5 | No relaxation | — |
| 16) | Nitrate (as NO ₃), mg/l, <i>Max</i> | 45 | No relaxation | — |

| | | | | |
|-----|---|-------|---------------|---|
| 17) | Phenolic compounds (as C ₆ H ₅ OH), mg/l, <i>Max</i> | 0.001 | 0.002 | — |
| 18) | Selenium (as Se), mg/l, <i>Max</i> | 0.01 | No relaxation | — |
| 19) | Silver (as Ag), mg/l, <i>Max</i> | 0.1 | No relaxation | — |
| 20) | Sulphate (as SO ₄) mg/l, <i>Max</i> | 200 | 400 | May be extended to 400 provided that Magnesium does not exceed 30 |
| 21) | Sulphide (as H ₂ S), mg/l, <i>Max</i> | 0.05 | No relaxation | — |
| 22) | Total alkalinity as calcium carbonate, mg/l, <i>Max</i> | 200 | 600 | — |
| 23) | Total hardness (as CaCO ₃), mg/l, <i>Max</i> | 200 | 600 | — |
| 24) | Zinc (as Zn), mg/l, <i>Max</i> | 5 | 15 | — |

NOTES:

- 1) In case of dispute, the method indicated by '*' shall be the referee method.
- 2) It is recommended that the acceptable limit is to be implemented. Values in excess of those mentioned under 'acceptable' render the water not suitable, but still may be tolerated in the absence of an alternative source but up to the limits indicated under 'permissible limit in the absence of alternate source' in col 4, above which the sources will have to be rejected.

Table No .6: Parameters Concerning Toxic Substances*(Foreword and Clause 4)*

| Sr. No. | Characteristic | Requirement (Acceptable Limit) | Permissible Limit in the Absence of Alternate Source | Remarks |
|----------------|--|---------------------------------------|---|----------------|
| i) | Cadmium (as Cd), mg/l, <i>Max</i> | 0.003 | No relaxation | — |
| ii) | Cyanide (as CN), mg/l, <i>Max</i> | 0.05 | No relaxation | — |
| iii) | Lead (as Pb), mg/l, <i>Max</i> | 0.01 | No relaxation | — |
| iv) | Mercury (as Hg), mg/l, <i>Max</i> | 0.001 | No relaxation | — |
| v) | Molybdenum (as Mo), mg/l, <i>Max</i> | 0.07 | No relaxation | — |
| vi) | Nickel (as Ni), mg/l, <i>Max</i> | 0.02 | No relaxation | — |
| vii) | Pesticides, µg/l, <i>Max</i> | — | No relaxation | — |
| viii) | Polychlorinated biphenyls, mg/l, <i>Max</i> | 0.000 5 | No relaxation | or APHA 6630 |
| ix) | Polynuclear aromatic hydrocarbons (as PAH), mg/l, <i>Max</i> | 0.000 1 | No relaxation | — |
| x) | Total arsenic (as As), mg/l, <i>Max</i> | 0.01 | 0.05 | — |
| xi) | Total chromium (as Cr), mg/l, <i>Max</i> | 0.05 | No relaxation | — |

Table No . 7: Bacteriological Quality of Drinking Water¹⁾*(Clause 4.1.1)*

| Sr. No. | Organisms | Requirements |
|----------------|--|--|
| 1) | All water intended for drinking: a) E. coli or thermo-tolerant coliform bacteria | Shall not be detectable in any 100 ml sample |
| 2) | Treated water entering the distribution system: a) E. coli or thermo-tolerant coliform bacteria b) Total coliform bacteria | Shall not be detectable in any 100 ml sample |
| 3) | Treated water in the distribution system: a) E. coli or thermo-tolerant coliform bacteria b) Total coliform bacteria | Shall not be detectable in any 100 ml sample |

Table No .8: Qualitative & Quantitative Parameters-Drinking Water Source at YCCE

| Sr.No | Characteristics Parameters | Values |
|--------------|--|---------------|
| 1) | Odour | Agreeable |
| 2) | Colour | <1 Hazen |
| 3) | Taste | Agreeable |
| 4) | pH | 7.2 |
| 5) | Electrical Conductivity | 405 |
| 6) | Water Temperature | 20 |
| 7) | Turbidity | 0.2 NTU |
| 8) | Total Solids (mg/L) | 216 |
| 9) | Dissolve Solids (mg/L) | 239 |
| 10) | Suspended solids (mg/L) | <7 |
| 11) | Relative Density | 1 |
| 12) | Dissolve Oxygen (mg/L) | 5 |
| 13) | Alkalinity (as CaCO ₃ , mg/L) | 174 |
| 14) | Total Hardness (as CaCO ₃ , mg/L) | 197 |
| 15) | Calcium (mg/L) | 46.1 |
| 16) | Magnesium (mg/L) | 16.2 |
| 17) | Chloride (mg/L) | 8 |
| 18) | Sulphate (mg/L) | 7 |
| 19) | Ortho Phosphate (mg/L) | <0.04 |
| 20) | Sodium (mg/L) | 7.2 |
| 21) | Fluorides (mg/L) | 0.297 |
| 22) | Iron (mg/L) | 0.147 |
| 23) | Nitrates (mg/L) | 1.295 |
| 24) | Aluminium (mg/L) | <0.022 |
| 25) | Copper(mg/L) | 0.012 |
| 26) | Zinc(mg/L) | 0.011 |
| 27) | Fecal coliform (CFU) | Absent |
| 28) | E. Coli (CFU) | Absent |

Table No .9: Water Source : I] MIDC

| Sr. No | Month/year 2016-17 | Total water qunatity (m³) |
|---------------|-------------------------------|---|
| 1) | October | 200 |
| 2) | November | 583 |
| 3) | December | 504 |
| 4) | February | 393 |
| 5) | March | |
| 6) | April | 565 |
| 7) | May | 442 |
| 8) | June | 781 |
| 9) | July | 822 |
| 10) | August | 531 |
| 11) | September | 353 |

Table No .10: Water Source : II] MJP

| Sr. No | Month | Year | Amount charged per 1000 litres | Total water qunatity (litres) | Total Units Used | Amount |
|---------------|---------------|-------------|---|--|---------------------------------|---------------|
| 1 | April- July | 2017 | 180 | 304000 | 304 | 54720 |
| 2 | July- October | 2017 | 180 | 327000 | 327 | 58860 |

Total water used =in litres

(Given, so covert it to Units)

1 Unit = 1000 litres

Total Units Used= Total water used in litres/1000 litres

Amount charged per 1000 litres = 180 Rs

Table No .11: Rooftop Rainwater Harvesting Potential

| Sr.no | Name of the Department | Terrace (Area) | Annual Rainfall (mm) | Runoff factor | RWH Potential (Litres) |
|--------------|-------------------------------|-----------------------|-----------------------------|----------------------|-------------------------------|
| 1 | Civil Building | 650.4 | 890.1 | 0.8 | 463151.07 |
| 2 | Electrical Building | 3620.1 | 890.1 | 0.8 | 2577829.29 |
| 3 | Mechanical Building | 663.8 | 890.1 | 0.8 | 472643.10 |
| 4 | Mechanical Lab Shed | 983.7 | 890.1 | 0.8 | 700476.66 |
| 5 | Workshop Shed | 1128.8 | 890.1 | 0.8 | 803803.02 |
| 6 | Science Building | 581.6 | 890.1 | 0.8 | 414138.61 |
| 7 | Civil Lab Shed | 196.1 | 890.1 | 0.8 | 139648.15 |
| 8 | Electronics Building | 3628.9 | 890.1 | 0.8 | 2584080.64 |
| 9 | Computer science | 540.4 | 890.1 | 0.8 | 384835.80 |
| 10 | IT Building | 569.0 | 890.1 | 0.8 | 405141.48 |
| 11 | Admin & Library | 695.7 | 890.1 | 0.8 | 495381.95 |

Annual Rainfall (mm) = 890.1 (July 2016 to June2017)

II] Air Audit

In addition to land and water, air is the prime resource for sustenance of life. In recent years, medium and small towns and cities have also witnessed an increase in pollution, thus getting fast reflected in the non-attainment cities of India. Air pollution has increasingly become a serious concern, predominantly because of its health impacts. Thus, regular track of Air Quality is important for human health.

One way to describe air quality is to report the concentrations of all pollutants with acceptable levels. An air quality index is defined as an overall scheme that transforms the weighed values of individual air pollution related parameters (for example, pollutant concentrations) into a single number or set of numbers.



Satellite Imagery No. 3: Sampling Locations of Air Component & Weather Component

Table No. 12 : National Ambient Air Quality Standards

| Sr. No. | Pollutants | Time weighted Average | Concentration of Ambient Air | |
|---------|--|-----------------------|--------------------------------------|-----------------------------|
| | | | Industrial, Residential, Rural Areas | Ecologically Sensitive Area |
| 1. | Sulphur Dioxide (SO ₂), µg/m ³ | Annual | 50 | 20 |
| | | 24 hrs | 80 | 80 |
| 2. | Nitrogen Dioxide (NO ₂), µg/m ³ | Annual | 40 | 30 |
| | | 24 hrs | 80 | 80 |
| 3. | Particulate matter (PM ₁₀), µg/m ³ | Annual | 60 | 60 |
| | | 24 hrs | 100 | 100 |
| 4. | Particulate matter (PM _{2.5}), µg/m ³ | Annual | 40 | 40 |
| | | 24 hrs | 60 | 60 |
| 5. | Ozone (O ₃), µg/m ³ | 8 hours | 100 | 100 |
| | | 1 hours | 180 | 180 |
| 6. | Carbon monoxide (CO) mg/m ³ | 8 hours | 02 | 02 |
| | | 1 hours | 04 | 04 |

Source: National Ambient Air Quality Standards, CPCB, New Delhi, 18th November, 2009

Table No .13: Qualitative and Quantitative Characteristics of Air pollutants in YCCE

| Sr. No. | Location | CO | NO ₂ | SO ₂ | PM 2.5 | PM 10 | O ₃ | NH ₃ |
|---------|----------|------|-----------------|-----------------|--------|--------|----------------|-----------------|
| 1) | L1 | 1870 | 8.4 | 22.31 | 225.4 | 250.7 | 90 | 26 |
| 2) | L2 | 1890 | 8.4 | 22.34 | 225.4 | 250.86 | 91 | 26 |
| 3) | L3 | 650 | 2.5 | 41.2 | 78.2 | 90.4 | 118.4 | 26 |
| 4) | L4 | 654 | 2.5 | 41.2 | 78.2 | 90.4 | 118.4 | 26 |
| 5) | L5 | 5 | 2.5 | 45 | 160 | 88 | 37 | 26 |

Table No.14: Assessment of Air Quality Index (AQI)

| Sr. No. | Location | AQI | PM 2.5 |
|---------|----------|-----|--------|
| 1) | L1 | 275 | 225.4 |
| 2) | L2 | 275 | 225.4 |
| 3) | L3 | 163 | 78.2 |
| 4) | L4 | 163 | 78.2 |
| 5) | L5 | 210 | 160 |

III] Weather and Climate Audit

Weather is the mix of events that happen each day in our atmosphere. Even though there's only one atmosphere on Earth, the weather isn't the same all around the world. Weather is different in different parts of the world and changes over minutes, hours, days, and weeks. Most weather happens in the part of Earth's atmosphere that is closest to the ground—called the troposphere. Whereas weather refers to short-term changes in the atmosphere, climate describes what the weather is like over a long period of time in a specific area. Different regions can have different climates.

Weather is made up of multiple parameters, including air temperature, atmospheric (barometric) pressure, humidity, precipitation, solar radiation and wind. Each of these factors can be measured to define typical weather patterns and to determine the quality of local atmospheric conditions. The environmental conditions produced by different weather parameters have an impact on the quality of the surrounding ecosystem. Weather monitoring can establish a database of typical conditions. When one or more weather elements deviate from this standard, the information can be used to explain or predict weather events.

Table No .15: Qualitative and Quantitative Characteristics of Weather and Climate at YCCE

| Sr. No. | Location | Air Temp (°C) Min.- Max. | Relative Humidity (%) | UV Index | Pressure (KPa) | Wind Speed (Km/hr) | Wind Chill (%) | Dew Point (°C) | Cloud Cover (%) |
|---------|----------|--------------------------------|-----------------------|----------|----------------|--------------------|----------------|----------------|-----------------|
| 1) | L1 | 22-30 | 66 | 3.95 | 1019 | 1.11 | 26 | 15 | 0 |
| 2) | L2 | 23-30 | 67 | 6 | 1019 | 1.11 | 26 | 15 | 30 |
| 3) | L3 | 18-29 | 35 | 5.8 | 1019 | 1.11 | 26 | 15 | 38 |
| 4) | L4 | 18-27 | 48 | 6 | 1018 | 1.11 | 26 | 15 | 30 |
| 5) | L5 | 18-26 | 42 | 7 | 1017 | 1.11 | 26 | 15 | 0 |

IV] Soil Audit

Soil is important as a medium for plant growth and for the support of much animal and human activity. The Soil acts as the reservoir for the nutrients and water providing the plant's needs for these requirements throughout their growth. Indeed soil (and the soil constituents), together with the plant life it supports, the rock on which it lies, and the climate it experiences, forms a finely balanced system.

The soil performs many functions. These include functions related to natural ecosystems, agricultural productivity, and environmental quality, soil as source of raw materials and as base for buildings. Of these the agricultural productivity function is probably the most widely recognized and understood.

The soil samples were collected from different locations within the YCCE campus by random sampling method and then further these samples were equilibrated by quartering and coning method. Further the big stones and mudballs were removed and the soil was sieved through the fine sieve and then was subjected for further qualitative and quantitative physico-chemical analysis.



Satellite Imagery No. 4: Sampling Locations of Soil Component

Table No .16: Standard Soil Classification

| Sr. No. | Soil Tests | Range | Classification |
|----------------|--|--------------|--------------------------|
| 1) | pH | <4.5 | Extremely acidic |
| | | 4.51-5.50 | Very strongly acidic |
| | | 5.51-6.00 | Moderately acidic |
| | | 6.01-6.50 | Slightly acidic |
| | | 6.51-7.30 | Neutral |
| | | 7.31-7.80 | Slightly alkaline |
| | | 7.81-8.50 | Moderately alkaline |
| | | 8.51-9.00 | Strongly alkaline |
| | | 9.01 | Very strongly alkaline |
| 2) | Salinity (mmhos/cm), (1ppm=640 mmhos/cm) | Upto 1.00 | Average |
| | | 1.01-2.00 | Harmful to germination |
| | | 2.01-3.00 | Harmful to crops |
| 3) | Organic carbon (%) | Upto 0.2 | Very Less (for crops) |
| | | 0.21-0.4 | Less |
| | | 0.41-0.6 | Medium |
| | | 0.61-0.8 | On an average sufficient |
| | | 0.81-1.0 | Sufficient |
| | | >1.0 | More than sufficient |

| | | | |
|----|-----------------------|---------|--------------------------|
| 4) | Nitrogen (Kg/ha) | Upto 50 | Very Less (for crops) |
| | | 51-100 | Less |
| | | 101-105 | Good |
| | | 151-300 | Better |
| | | >300 | Sufficient |
| 5) | Phosphorus (Kg/ha) | Upto 15 | Very Less (for crops) |
| | | 16-30 | Less |
| | | 31-50 | Medium |
| | | 51-65 | On an average sufficient |
| | | 66-85 | Sufficient |
| | | >80 | More than sufficient |
| 6) | Potash (Kg/ha) | 0-120 | Very Less (for crops) |
| | | 121-180 | Less |
| | | 181-240 | Medium |
| | | 241-300 | Average |
| | | 301-360 | Better |
| | | >360 | More than sufficient |

Source: Hand Book of Agriculture, ICAR, New Delhi

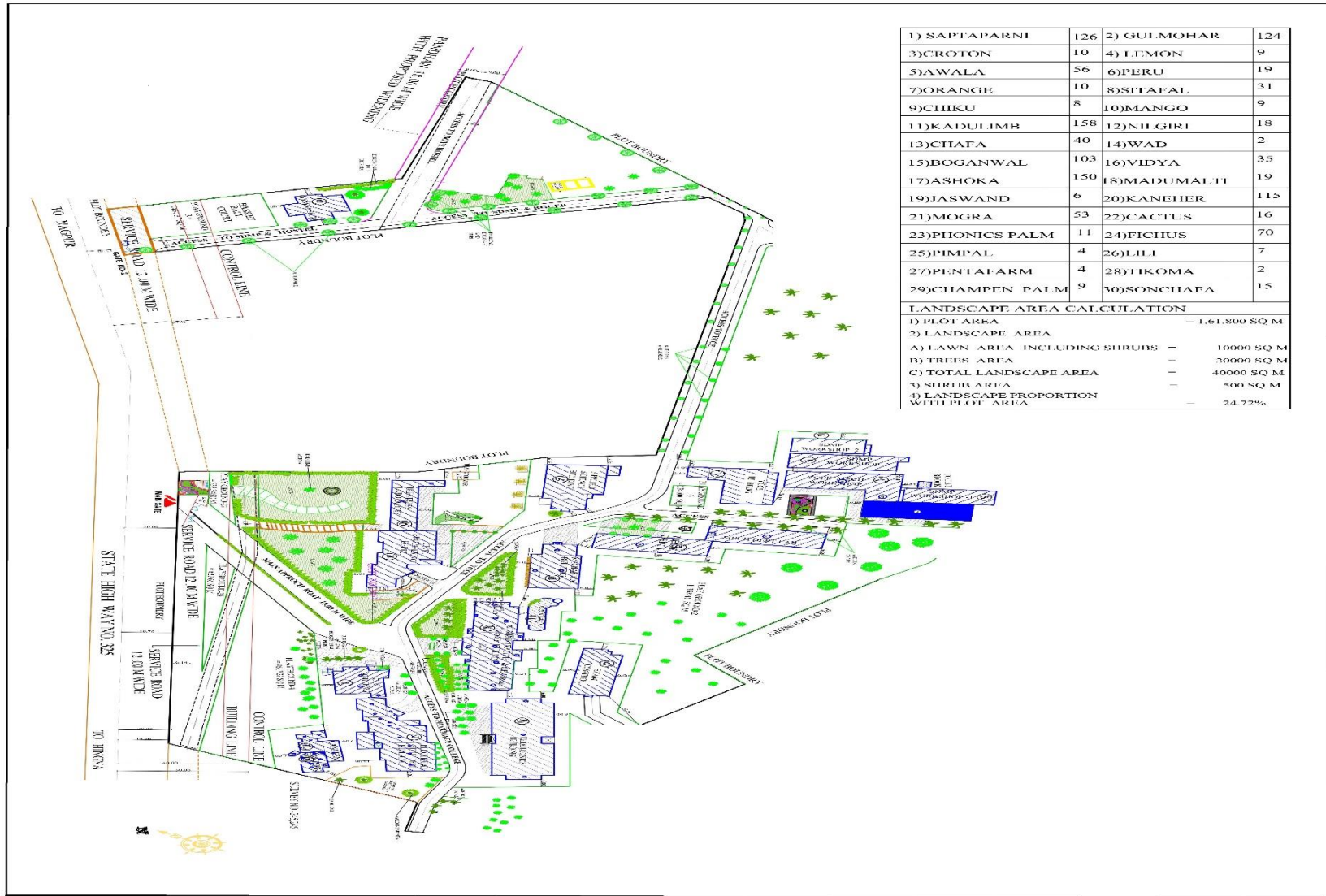
Table No .17: Qualitative and Quantitative Characteristics of Soil at YCCE

| Sr. No. | Parameters | Units | Results |
|----------------|-----------------------|-------------------|----------------|
| 1 | Available Nitrogen | mg/kg | 198 |
| 2 | Available Phosphorous | mg/kg | 8.89 |
| 3 | Available Potassium | meq/100g | 0.589 |
| 4 | Organic Carbon | % | 0.769 |
| 5 | Bulk Density | g/cm ³ | 0.28 |

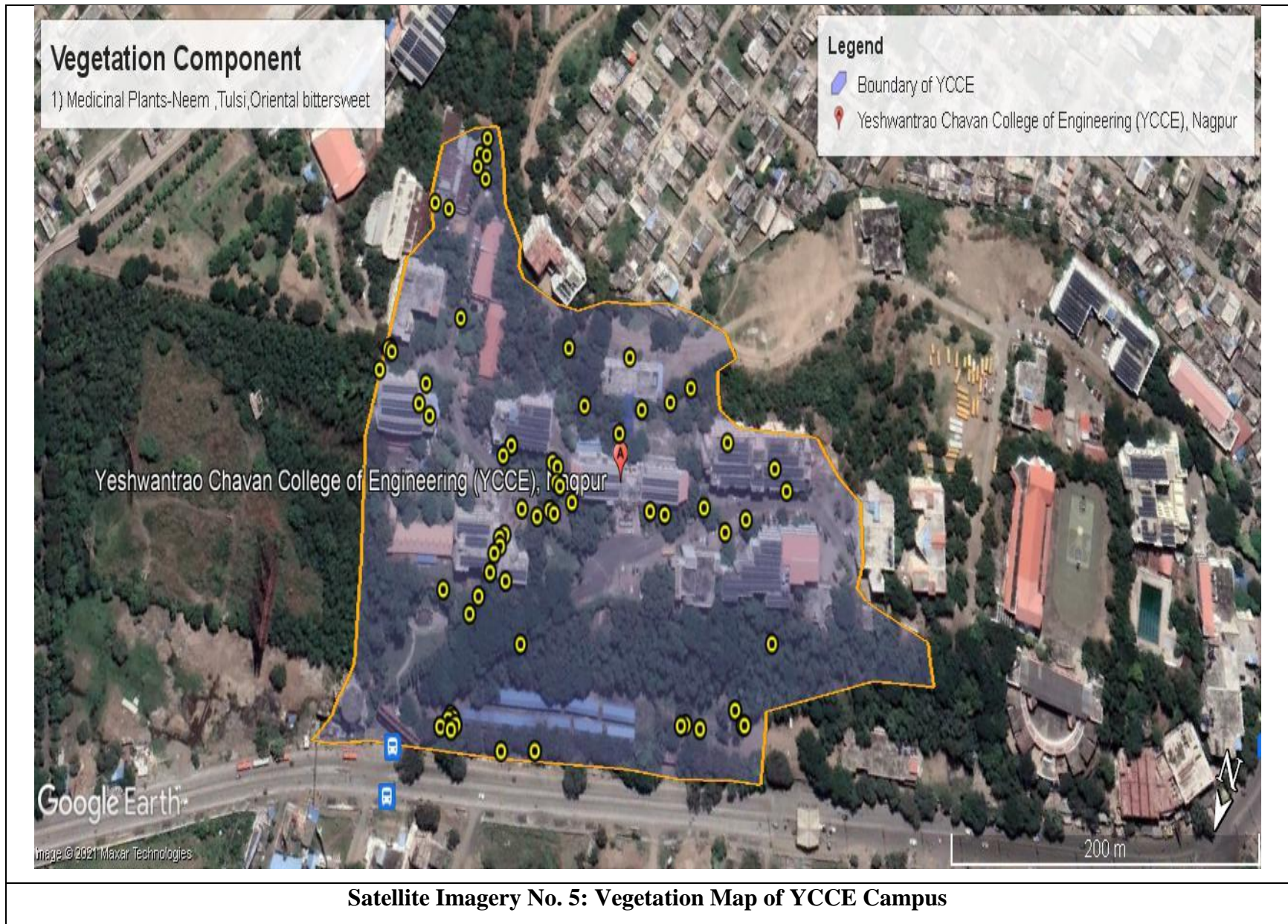
V] Vegetation Audit

Trees play a critical role for people and the planet. Numerous studies have demonstrated that the presence of trees and urban nature can improve people's mental and physical health, children's attention and test scores, the property values in a neighborhood, and beyond. Trees cool our urban centers. Trees are essential for healthy communities and people. The benefits that trees provide can help cities and countries meet 15 of the 17 internationally supported United Nations Sustainable Development Goals. Trees can promote a quality education, which has innumerable advantages for society.

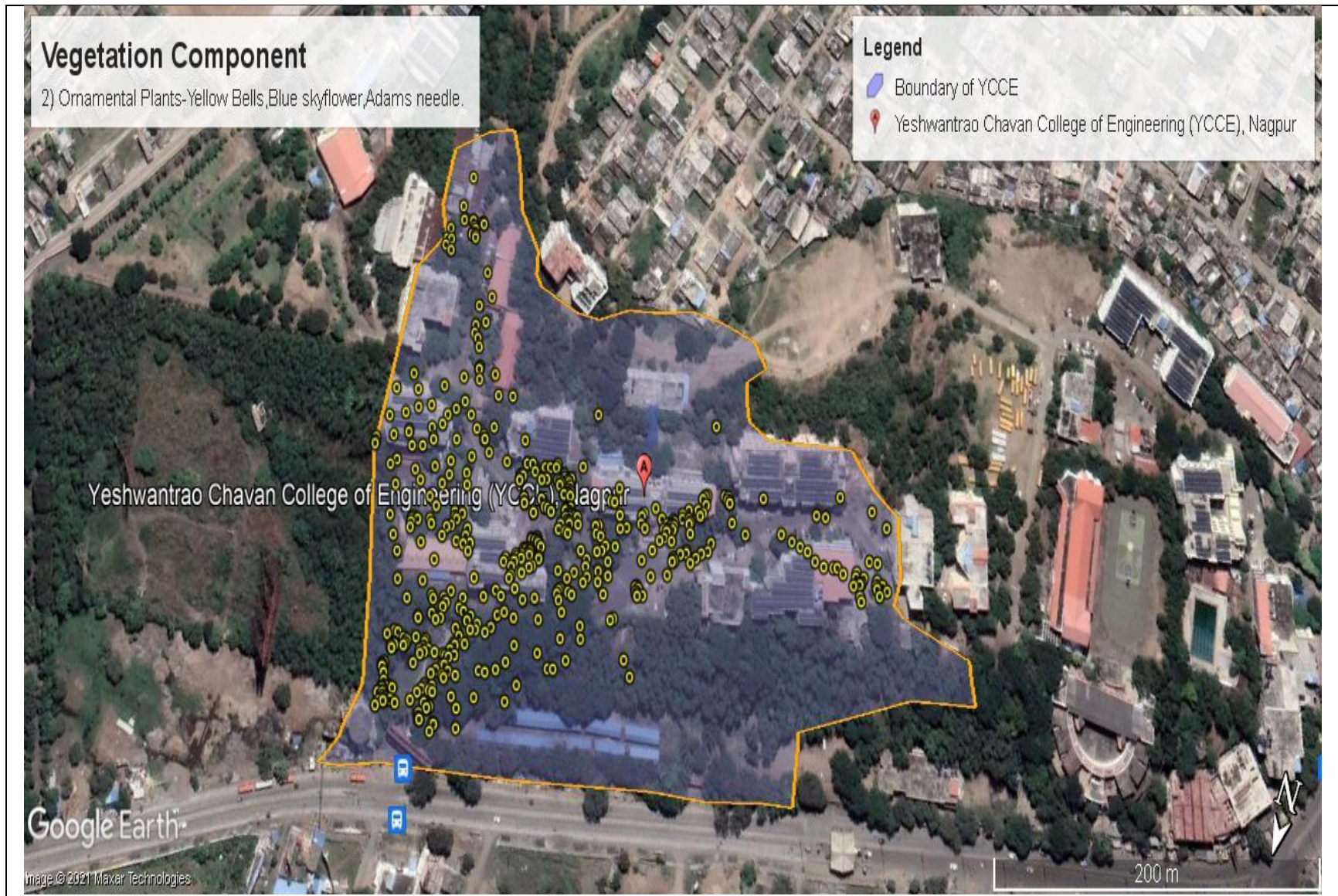
The Flora component was studied by observation and identification method. The vegetation was further categorized as: Shrubs, Ornamental Species, Medicinal Species and Tree Species.



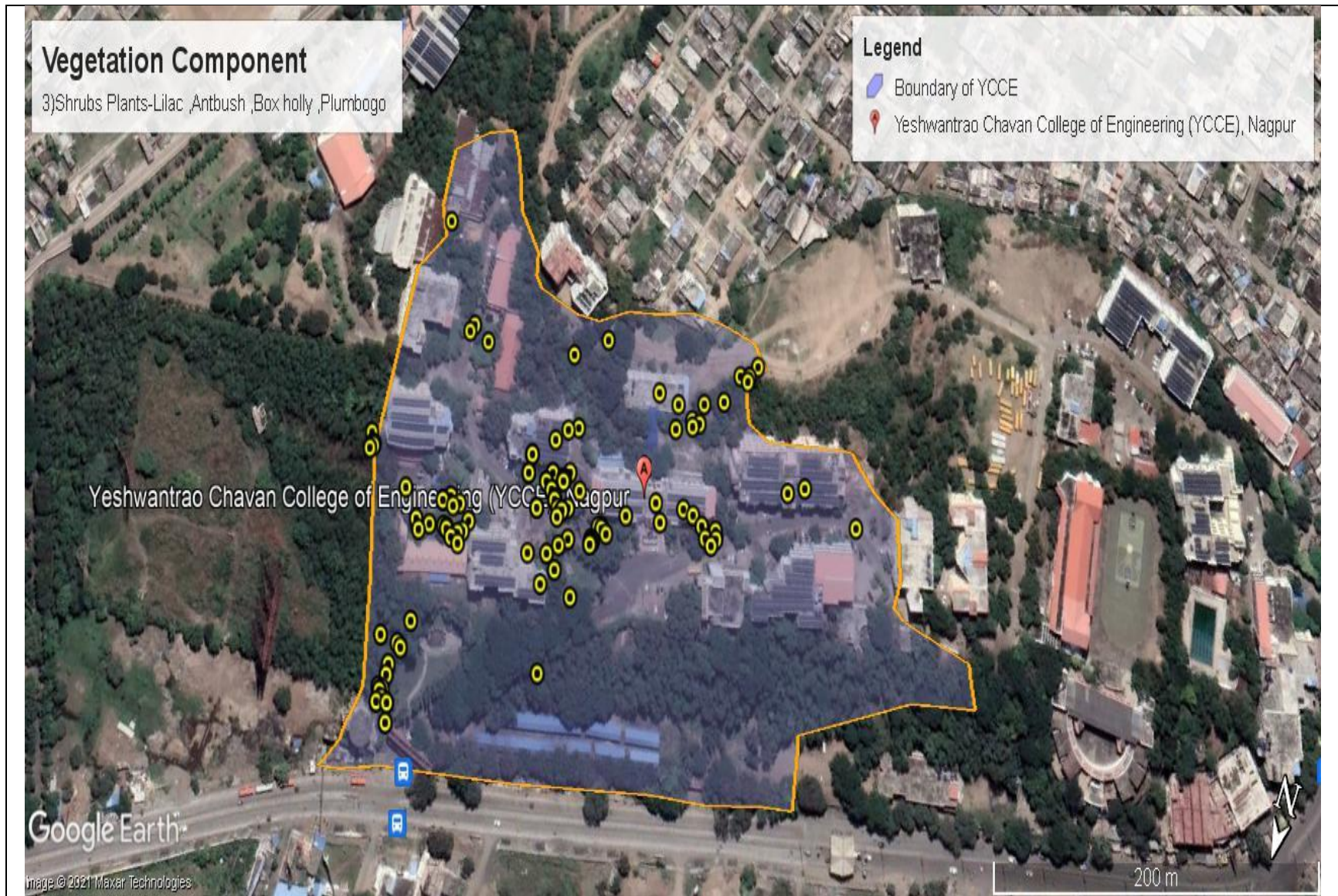
Map No. 2: Vegetation Map of YCCE Campus



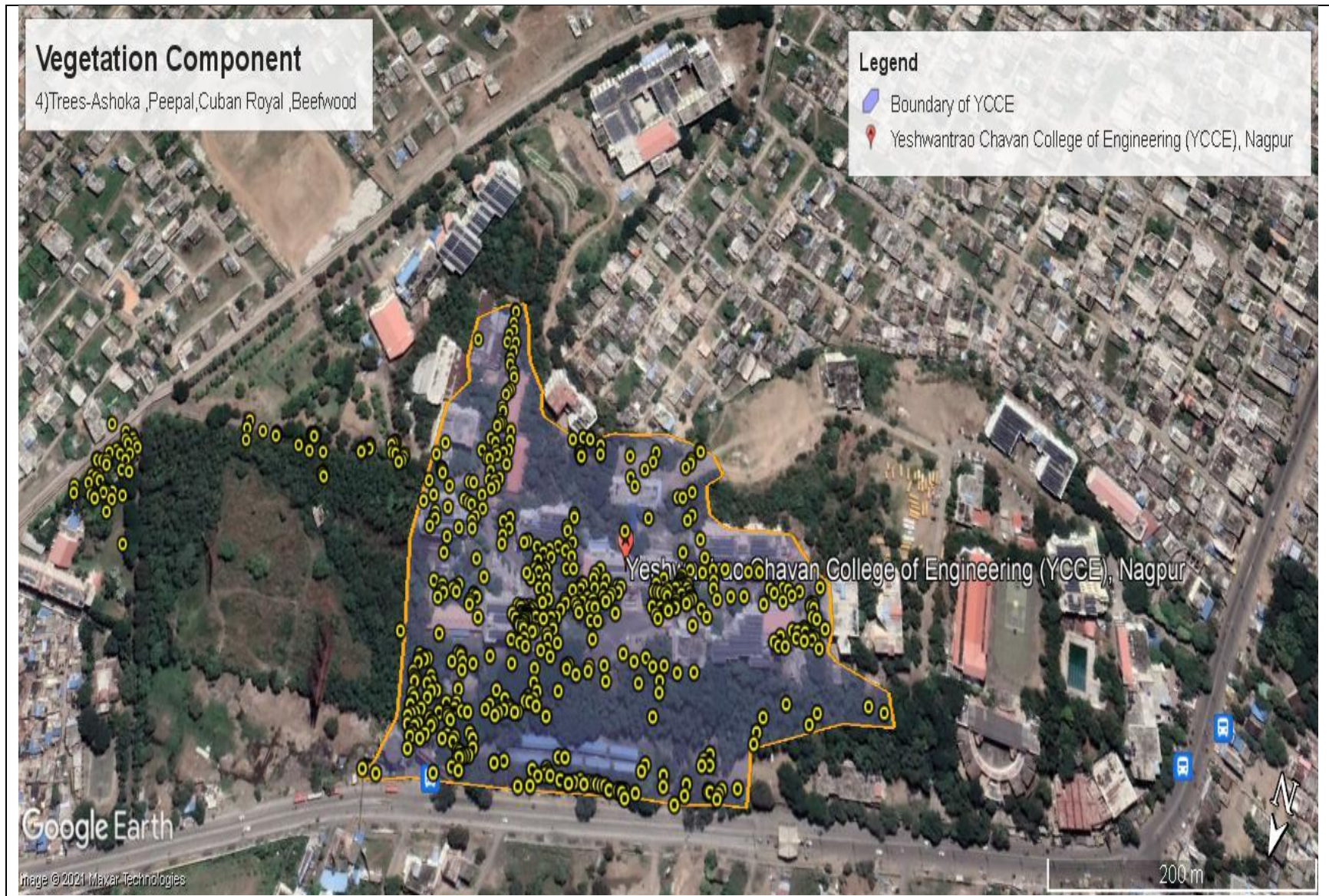
Satellite Imagery No. 5: Vegetation Map of YCCE Campus



Satellite Imagery No. 6: Vegetation Map of YCCE Campus



Satellite Imagery No. 7: Vegetation Map of YCCE Campus



Satellite Imagery No. 8: Vegetation Map of YCCE Campus



Satellite Imagery No. 9: Vegetation Map of YCCE Campus



At Entrance



Within Campus

Vegetation at YCCE: I] Medicinal Species

Table No.18: Medicinal Species

| Sr. No. | Scientific Name | Common Name | Total Species |
|---------|------------------------------------|----------------------|---------------|
| 1) | <i>Celastrus orbiculatus Thunb</i> | Oriental bittersweet | 7 |
| 2) | <i>Azadirachta indica</i> | Neem | 58 |
| 3) | <i>Phyllanthus amarus</i> | Carry me seed | 1 |
| 4) | Total | | 66 |

Vegetation at YCCE: II] Ornamental Species

Table No.19: Ornamental Species

| Sr. No. | Scientific Name | Common Name | Total Species |
|---------|---|----------------------|---------------|
| 1) | <i>Amelanchier laevis</i> | Juneberry | 20 |
| 2) | <i>Bougainvillea spectabilis</i> | Great bougainvillea | 11 |
| 3) | <i>Thevetia neriifolia</i> | Yellow oleander | 5 |
| 4) | <i>Bougainvillea spectabilis</i> | Great Bougainvillea | 1 |
| 5) | <i>Duranta erecta</i> | Golden dewdrop | 12 |
| 6) | <i>Ixora coccinea</i> | Ixora | 2 |
| 7) | <i>Murraya paniculata</i> | Orange jasmin | 1 |
| 8) | <i>Agave desmettiana Jacobi</i> | Dwarf century plant | 11 |
| 9) | <i>Agave sisalana Perrine</i> | Mescal | 3 |
| 10) | <i>Bougainvillea spectabilis Wild</i> | Great bougainvillea | 32 |
| 11) | <i>Duranta erecta L.</i> | Golden dewdrops | 25 |
| 12) | <i>Euphorbia characias L.</i> | Mediterranean spurge | 13 |
| 13) | <i>Hibiscus rosa-sinensis L.</i> | Hawaiian hibiscus | 5 |
| 14) | <i>Phymosia umbellata</i> | Mexican Bush Mallow | 3 |
| 15) | <i>Tecoma stans (L.) juss. Ex Kunth</i> | Yellow-bells | 2 |
| 16) | <i>Acalypha wilkesiana</i> | Copperleaf | 11 |
| 17) | <i>Agave sisalana perrine</i> | Mescal | 5 |

| | | | |
|-----|----------------------------------|------------------------|-----|
| 18) | <u>Agave vivipara</u> | Garden sisal | 6 |
| 19) | <u>Alternanthera brasiliana</u> | Ruby leaf | 2 |
| 20) | <u>Bougainvillea glabra</u> | Bougainvillea | 11 |
| 21) | <u>Bougainvillea spectabilis</u> | Great baugainvillea | 26 |
| 22) | <u>Breniya disticha</u> | Foliage flower | 1 |
| 23) | <u>Callistemon citrinus</u> | Crimson bottlebrush | 3 |
| 24) | <u>Canna indica</u> | Canna lily | 5 |
| 25) | <u>Carex morrowii Booty</u> | Japanese sedge | 1 |
| 26) | <u>Cascabela thevetia</u> | Yellow oleander | 25 |
| 27) | <u>Catharanthus roseus</u> | Periwinkle | 16 |
| 28) | <u>Cestrum nocturnum</u> | Night jasmine | 1 |
| 29) | <u>Chlorophytum comosum</u> | Spider plant | 3 |
| 30) | <u>Codiaeum variegatum</u> | Croton | 4 |
| 31) | <u>Cordyline fruticosa</u> | Broadleaf palm lily | 1 |
| 32) | <u>Cycas revoluta</u> | Sago palm | 2 |
| 33) | <u>Duranta erecta</u> | Golden dewdrop | 147 |
| 34) | <u>Furcraea foetida</u> | Mauritius hemp | 17 |
| 35) | <u>Heliconia rostrata</u> | Lobster claw | 3 |
| 36) | <u>Hibiscus rosa sinensis</u> | Hawaiian hibiscus | 19 |
| 37) | <u>Ixora coccinea</u> | Ixora | 14 |
| 38) | <u>Jacaranda mimosifolia</u> | Blue jacaranda | 1 |
| 39) | <u>Lagerstroemia indica</u> | Crapemyrtle | 1 |
| 40) | <u>Lantana .montevidensis</u> | Purple lantana | 2 |
| 41) | <u>Lantana camara</u> | Lantana | 2 |
| 42) | <u>Murraya paniculata</u> | Orange jasmine | 9 |
| 43) | <u>Neomarica gracilis</u> | Brazilian walking iris | 9 |
| 44) | <u>Peltophorum pterocarpum</u> | Copper Rod | 1 |
| 45) | <u>Pereskia grandifolia</u> | Rose Cactus | 2 |
| 46) | <u>Rosa chinensis</u> | Bengal rose | 2 |
| 47) | <u>Rosa gallica</u> | Hungarian rose | 3 |

| | | | |
|-----|--------------------------------|----------------|-----|
| 48) | <i>Rosmarinus officinalis</i> | Rosemary | 1 |
| 49) | <i>Sphagneticola trilobata</i> | Wedelia | 6 |
| 50) | <i>Tecoma stans</i> | Yellow bells | 18 |
| 51) | <i>Thunbergia grandiflora</i> | Blue skyflower | 1 |
| 52) | <i>Yucca filamentosa</i> | Adams needle | 1 |
| 53) | <i>Yucca gloriosa</i> | Spanish dagger | 1 |
| 54) | Total | | 617 |

Vegetation at YCCE: III] Shrubs Species

Table No.20: Shrubs Species

| Sr. No. | Scientific Name | Common Name | Total Species |
|---------|--------------------------------------|--------------------------|---------------|
| 1 | <i>Coffea arabic L.</i> | Arabian coffee | 11 |
| 2 | <i>Comoclinium coelestinum</i> | Blue mist flower | 29 |
| 3 | <i>Jasminium sambac</i> | Arabian jasmin | 49 |
| 4 | <i>Leucaena leucocephala</i> | Coffeebush | 6 |
| 5 | <i>Pseuderanthemum carruthersii</i> | Purple false erranthemum | 5 |
| 6 | <i>Acalypha indica</i> | Indian Copperleaf | 6 |
| 7 | <i>Buglossoides purpuro caerulea</i> | Purple gromwell | 8 |
| 8 | <i>Cardiospermum halicacabum</i> | Ballon vine | 11 |
| 9 | <i>Carissa carandas</i> | Karandang | 4 |
| 10 | <i>Cordia myxa</i> | Sebesten plum | 2 |
| 11 | <i>Cyanthillium cinereum</i> | Little ironweed | 5 |
| 12 | <i>Desmodium paniculatum</i> | Panicled tick clover | 9 |
| 13 | <i>Galphimia glauca</i> | Gold shower | 13 |
| 14 | <i>Hamelia patens</i> | Redhead | 8 |
| 15 | <i>Iris foetidissima</i> | Stinking Iris | 5 |
| 16 | <i>Lactuca virosa</i> | Bitter lettuce | 6 |
| 17 | <i>Leucaena leucocephala</i> | Coffee bush | 14 |
| 18 | <i>Ligustrum vulgare</i> | Common privet | 25 |
| 19 | <i>Mirabilis jalapa</i> | Four o' clock flower | 2 |

| | | | |
|----|-------------------------------------|-------------------------|-----|
| 20 | <i>Myoporum tenuifolium</i> | Manatoka | 4 |
| 21 | <i>Nerium oleander</i> | Oleander | 1 |
| 22 | <i>Nerium oleander</i> | Oleander | 8 |
| 23 | <i>Plumbago auriculata</i> | Plumbago | 5 |
| 24 | <i>Podranea ricasoliana</i> | Queen of sheba vine | 3 |
| 25 | <i>Pseuderanthemum carruthersii</i> | Purple False Eranthemum | 2 |
| 26 | <i>Ruscus aculeatus</i> | Box holly | 5 |
| 27 | <i>Senna occidentalis</i> | Antbush | 3 |
| 28 | <i>Syringa vulgaris</i> | Lilac | 4 |
| 29 | <i>Tabernaemontana divaricata</i> | Crape jasmine | 9 |
| 30 | <i>Tridax procumbens</i> | Coatbuttons | 12 |
| | Total | | 274 |

Vegetation at YCCE: IV] Tree Species

Table No.21: Tree Species

| Sr. No. | Scientific Name | Common Name | Total Species |
|---------|---------------------------------|-------------------|---------------|
| 1) | <i>Saraca asoca</i> | Ashoka | 112 |
| 2) | <i>Ficus religiosa</i> | Peepul | 1 |
| 3) | <i>Roystonea regia</i> | Cuban royal palm | 5 |
| 4) | <i>Casuarina cunninghamiana</i> | Beefwood | 9 |
| 5) | <i>Ficus cyanhistipula</i> | African fig tree | 2 |
| 6) | <i>Syngonium podophyllum</i> | Arrowhead vine | 6 |
| 7) | <i>Hymenocallis littoralis</i> | Beach spider lily | 1 |
| 8) | <i>Ligustrum lucidum</i> | Chinese privet | 2 |
| 9) | <i>Psidium guajava</i> | Common guava | 3 |
| 10) | <i>Roystonea regia</i> | Cuban royal palm | 5 |
| 11) | <i>Murraya koenigii</i> | Curry leaf | 8 |
| 12) | <i>Alstonia scholaris</i> | Dita bark | 41 |
| 13) | <i>Hyphene coriaceae</i> | Doum palm | 4 |
| 14) | <i>Plumeria rubra</i> | Frangipani | 4 |

| | | | |
|-----|--------------------------------|-------------------------|----|
| 15) | <i>Plumeria pudica</i> | Golden arrow | 4 |
| 16) | <i>Lonicera japonica</i> | Honeysuckle | 4 |
| 17) | <i>Washingtonia robusta</i> | Mexican washington palm | 4 |
| 18) | <i>Bauhinia variegata</i> | Orchid tree | 4 |
| 19) | <i>Ficus religiosa</i> | Sacred fig | 4 |
| 20) | <i>Cycus revoluta</i> | Sago palm | 4 |
| 21) | <i>Phoenix reclinata</i> | Senegal date palm | 4 |
| 22) | <i>Annona squamosa</i> | Sugar apple | 4 |
| 23) | <i>Citrus sinensis</i> | Sweet orange | 4 |
| 24) | <i>Terminalia catappa</i> | Tropical almond | 4 |
| 25) | <i>Schotia brachypetale</i> | Weeping boer bean | 4 |
| 26) | <i>Platycladus orientalis</i> | Chinese arborvitae | 4 |
| 27) | <i>Juniperus chinensis</i> | Chinese juniper | 4 |
| 28) | <i>Thuja occidentalis</i> | Northern white cedar | 4 |
| 29) | <i>Cupressus sempervirens</i> | Mediterranean cypress | 4 |
| 30) | <i>Carica papaya</i> | Papaya | 4 |
| 31) | <i>Alstonia scholaris</i> | Ditabark | 4 |
| 32) | <i>Roystonea regia</i> | Cuban royal palm | 4 |
| 33) | <i>Senna siamea</i> | Siamese cassia | 6 |
| 34) | <i>Caesalpinia echinata</i> | Brazil wood | 15 |
| 35) | <i>Albizia lebeck</i> | Frywood | 2 |
| 36) | <i>Alstonia scholaris</i> | Devil tree | 3 |
| 37) | <i>Plumeria obtusa</i> | Singapore graveyard | 10 |
| 38) | <i>Ficus benjamina</i> | weeping fig | 3 |
| 39) | <i>Citrus aurantifolia</i> | Sweet orange | 4 |
| 40) | <i>Campsis radican</i> | Trumpet vine | 7 |
| 41) | <i>Terminalia catappa</i> | Indian almond | 5 |
| 42) | <i>Bambusa vulgaris</i> | Common bamboo | 59 |
| 43) | <i>Alstonia scholaris</i> | Devil tree | 6 |
| 44) | <i>Caesalpinia pulcherrima</i> | Peacock flower | 19 |

| | | | |
|-----|---|----------------------|-----|
| 45) | <i>Caryota urens</i> | Jaggery palm | 11 |
| 46) | <i>Platycladus orientalis</i> | Chinese arborvitae | 9 |
| 47) | <i>Platycladus orientalis</i> | Chinese arborvitae | 26 |
| 48) | <i>Ficus cyanthistipula</i> | African fig tree | 29 |
| 49) | <i>Bismarckia nobilis</i> | Silver Bismarck Palm | 6 |
| 50) | <i>Duranta erecta</i> | golden dewdrop | 19 |
| 51) | <i>Bombax ceiba</i> | Cotton tree | 5 |
| 52) | <i>Ficus sycomorus</i> | Sycamore fig | 9 |
| 53) | <i>Pongamia pinnata</i> | Indian beech | 2 |
| 54) | <i>Ficus religiosa</i> | Sacred fig | 9 |
| 55) | <i>Alstonia scholaris</i> | Ditabark | 8 |
| 56) | <i>Magnolia grandiflora L.</i> | Southern magnolia | 19 |
| 57) | <i>Juniperus thurifera L.</i> | Incense Juniper | 7 |
| 58) | <i>Citrus sinensis (L.)</i> | Valencia orange | 3 |
| 59) | <i>Ravenala madagascariensis</i> | Traveler's palm | 13 |
| 60) | <i>Ficus benjamina</i> | Weeping fig | 10 |
| 61) | <i>Terminalia catappa</i> | Tropical almond | 5 |
| 62) | <i>Gleditsia triacanthos</i> | Honey locust | 3 |
| 63) | <i>Senna siamea</i> | Ironwood Cassia | 4 |
| 64) | <i>Rauvolfia caffra Sond.</i> | Quininetree | 15 |
| 65) | <i>Psidium guajava L.</i> | Common guava | 6 |
| 66) | <i>Roystonea regia (Kunth)</i> <i>O.F.Cook</i> | Cuban royal palm | 18 |
| 67) | <i>Tipuana tipu (benth.) Kuntze</i> | Tiputree | 35 |
| 68) | <i>Theobroma cacao L.</i> | cocoa | 39 |
| 69) | <i>Caesalpinia pulcherrima (L.)Sw.</i> | Pride-of-Barbados | 14 |
| 70) | <i>Prosopis pallida (wild.) Kunth</i> | Kiawe | 6 |
| 71) | <i>Ficus hispida L.f.</i> | Hairy fig | 2 |
| 72) | <i>Dalbergia latifolia Roxb.</i> | East Indian rosewood | 1 |
| 73) | Total | | 718 |



**Zephyranthes
candida**



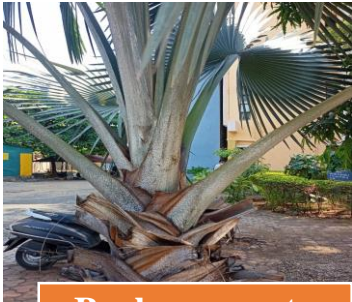
Musa paradisiaca



Tecoma stans



Ficus benjamina



Brahea armata



Phoenix reclinata



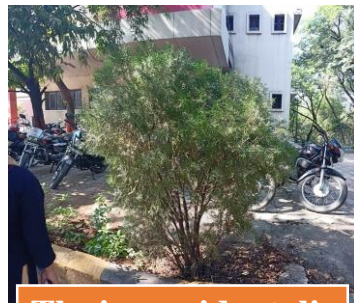
Bauhinia variegata



Duranta erecta



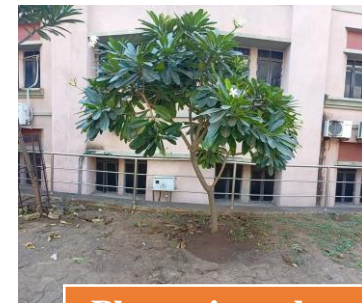
Ixora chinensis



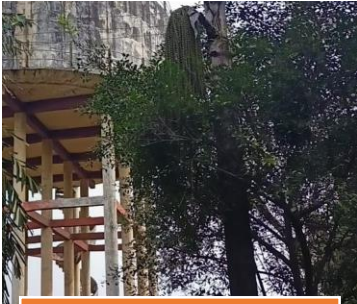
Thuja occidentalis



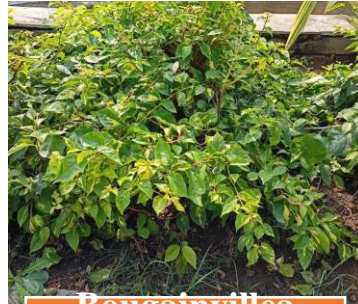
Murraya paniculata



Plumeria rubra



Caryota urens



Bougainvillea glabra



Galphimia glauca



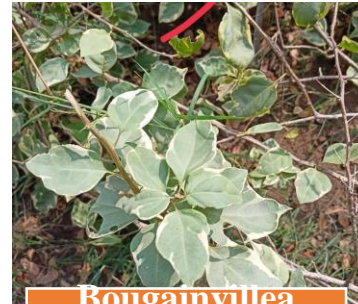
Agave vivipara



Jasminum sambac



Dracaena fragrans



Bougainvillea butifiana



Washingtonia robusta



Ficus carica



Hamelia patens



Plumbago auriculata



Agave sisalana



Carrisa carandas



Jatropha nodagrica



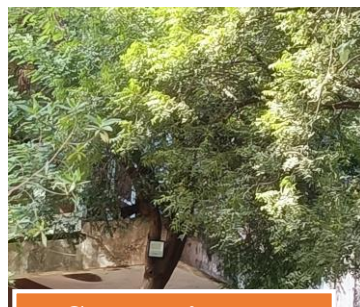
Alistonia scholaris



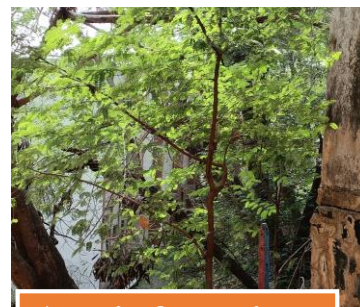
Magnifera indica



Leucaena leucocephala



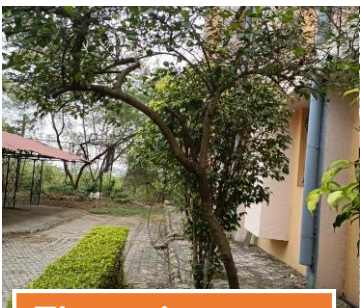
Senna siamea



Acacia farnesiana



Ficus benjamina



Ficus microcarpa



Thespesia populnea



Cordia myxa



Ixora coccinea

VI] Fauna Audit

Diversity of avifauna is one of the most important ecological indicators to evaluate the quality of habitats. Random destruction of natural habitats by cutting nesting trees and foraging plants for commercial use of woods and lands are the main factors responsible in narrowing down the avian foraging habitat and nesting sites. Urban bird densities are normally extremely high (Walsh, 2006). Increase in bird densities may be the result of high food density, low predation pressure or combination of both (Shochat, 2004). Birds are essential animal group of an ecosystem that maintains a trophic level.

The fauna species were documented by observation and identification method during the field excursion. The observed species are photographed as an evidence of presence in the YCCE campus. This data shall help understand the type of Ecological food chain existing in the environmental segment of YCCE.



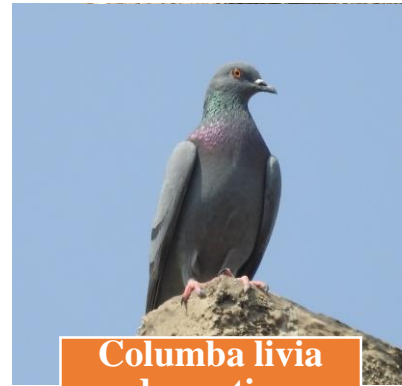
Satellite Imagery No.10: Sampling Area for Fauna Audit



Merops orientalis



**Apis mellifera
comb**



**Columba livia
domestica**



**Omocestus
viridulus**



Euploea core



**Spilopelia
senegalensis**



Catopsilia florella



**Psittacula
krameri**

VII] Energy Audit: A) Electric Audit

Electricity is a basic part of nature and it is one of our most widely used forms of energy. Many cities and towns were built alongside waterfalls (a primary source of mechanical energy) that turned water wheels to perform work. An electric utility power station uses a turbine, engine, water wheel, or other similar machine to drive an electric generator or a device that converts mechanical or chemical energy to generate electricity. Electricity is measured in units of power called watts. It was named to honor James Watt, the inventor of the steam engine. The amount of electricity a power plant generates or a customer uses over a period of time is measured in kilowatt-hours (kWh).

The electric energy component was analyzed with due details about no. of units utilized daily/monthly and also departmentwise all the electrical equipments utilizing electrical energy were enlisted with the amount of energy they utilize.

Table No .22: List of Electrical Equipments at Departmen of Civil

| Sr No | Name of Lab | Fan 60 w | Tube light | | LED 18 W | CFL 18x2 w | Tube Light 36 w | PC | Printer | Projector | Monitor | EPBX n/c | TV | Exhaust Fan | Wall Fan | AC Split | AC Window | Freez | Universal Testing m/c | M/C 5 HP | Oven | motor 0.75 hp | motor 2 hp | motor 180 w | motor 2.5 hp | coil 1000w | Motor 0.5 hp | motor 3.7 kw | Heater5 000 w | | | |
|---------------------|--------------------------|----------|------------|--------|----------|------------|-----------------|--------|---------|-----------|---------|----------|------|-------------|----------|----------|-----------|-------|-----------------------|----------|------|---------------|------------|-------------|--------------|------------|--------------|--------------|---------------|---|---|--|
| | | | T5 | 20 w | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Ground Floor | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 1 staff Room | 2 | | 2 | | | | 2 | 1 | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | 2 Lab | 4 | | 3 | | | 4 | 1 | | | | | | | 1 | | | | 1 | 1 | | | | | | | | | | | | |
| 3 | 3 & 4 Office | 2 | 1 | 2 | 1 | 5 | 1 | | 1 | 2 | | 1 | | 1 | | | | | | | | | | | | | | | | | | |
| 4 | 5 Office | 2 | 1 | 5 | | | | 1 | 1 | | | | | | | 2 | | | | | | | | | | | | | | | | |
| 5 | Passage | | | 4 | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | |
| 6 | Gents Toilet pannel Room | | | 2 | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | |
| 7 | Transportation Engg 006 | 4 | | 2 | | | 5 | 1 | | | | | | | 1 | | | | | | | 1 | 1 | 1 | 1 | 2 | | | | | | |
| 8 | Structures Lab 007 | 4 | | 3 | | | 2 | 1 | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | Geology Engg Lab 008 | 3 | 4 | 1 | | | 1 | 2 | 1 | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | CE 009 | 4 | | 4 | | | 3 | | | | | | | | | | | | | | | 2 | | | | | | | | 1 | | |
| 11 | 12 Lab | 4 | | 7 | | | | 4 | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | 13 Lab | 4 | | 7 | | | | 4 | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | 14 Lab | 3 | 2 | 1 | | | | 3 | 1 | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | 15 Girls Common Room | 3 | | 4 | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | |
| 15 | Strength of Material | 4 | 1 | 2 | | | 2 | 2 | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 | Geotechnical Lab | 6 | | 4 | | | 5 | 1 | | | | | | | 1 | | | | | | | | | | | | | | | | | |
| 17 | Concret Lab | 10 | 7 | 1 | | | 10 | | | | | | | | | | | | | | | | 4 | | 2 | | | 1 | | 1 | 1 | |
| 18 | Sarve Lab | 3 | 2 | 2 | | | 5 | 1 | | | | | | | | | | | | | | | | | | | | | | | | |
| First Floor | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20 | Staff Room | 2 | 1 | 2 | | | | 2 | | | | | | | | | | | | | | | | | | | | | | | | |
| 21 | Computer Lab 102 | 8 | | | 15 | | | 40 | | | | | | | | | | | | | | | | | | | | | | | | |
| 22 | Computer Lab 103 | 8 | | | 15 | | | 25 | 2 | 1 | 3 | | | | | | | | | | | | | | | | | | | | | |
| 23 | Computer Lab 104 | 4 | | 2 | | | 6 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 24 | Computer Lab 105 | 4 | | | | 24 | | 30 | | | | | | | | | | | | | | | | | | | | | | | | |
| 25 | Water supply Lab 106 A | 4 | | 2 | | | 4 | 1 | | | | | | | | | | | | | | 4 | 1 | | | | | | | | | |
| 26 | Servey Lab | 4 | | | | | 6 | 1 | | | | | | | | | | | | | | | | | | | | | | | | |
| | CE 110 | 1 | | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Structural Dynamics 109 | 7 | 7 | 1 | | | | 2 | | | | | | | 1 | | | | | | | | 1 | | | | | | | | | |
| 27 | CE 108 | 1 | | 2 | | | | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | |
| 28 | Passage | | | 3 | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 29 | Toilet | | | 1 | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | |
| 30 | CE 111 | 7 | 5 | 1 | | | | 2 | | | | | | | | | | | | | | | | | | | | | | | | |
| Second Floor | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 32 | Room no 203 A | 3 | | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Room no 203 B | 3 | | 3 | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Room No 204A | 3 | | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 33 | Room no 204 B | 4 | | 3 | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 34 | Room no 205 A | 3 | | 4 | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Room no 205 B | 2 | | 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 35 | Room no 208 | 8 | 3 | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 36 | Room no 209 | 9 | 6 | 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 37 | Toilet | | | 1 | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | |
| 38 | Passage | | | 2 | | | 2 | | | | | | | | | | | | | | | | | | | | | | | | | |
| Third Floor | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 39 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 40 | Room no 302 | 7 | 5 | 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 41 | Room no 303 | 7 | 4 | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 42 | Room no 304 | 7 | 6 | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 43 | Room no 305 | 9 | 4 | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 44 | Room no 306 | 7 | 2 | 6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 45 | Room no 308 | 7 | 2 | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 46 | Room no 310 | 9 | 4 | 7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 47 | Toilet | | | 3 | | | | | | | | | | 2 | | | | | | | | | | | | | | | | | | |
| 48 | Passage | | 3 | 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 49 | Total | 200 | 70 | 147 | 31 | 29 | 60 | 127 | 8 | 3 | 3 | 1 | 1 | 7 | 4 | 4 | 10 | 1 | 1 | 1 | 8 | 5 | 5 | 1 | 3 | 2 | 2 | 1 | 1 | | | |
| 50 | Watts | 60 | 28 | 20 | 18 | 36 | 36 | 150 | 100 | 100 | 100 | 200 | 100 | 300 | 60 | 2000 | 2000 | 500 | 500 | 3730 | 2000 | 560 | 1492 | 180 | 1865 | 1000 | 373 | 3700 | 5000 | | | |
| 51 | Total Watts | 12000 | 1960 | 2940 | 558 | 1044 | 2160 | 19050 | 800 | 300 | 200 | 100 | 2100 | 240 | 8000 | 20000 | 500 | 500 | 3730 | 16000 | 2800 | 7460 | 180 | 5595 | 2000 | 746 | 3700 | 5000 | | | | |
| 52 | Per day Hrs | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 1 | 1 | 24 | 24 | 2 | 12 | 7 | 7 | 7 | 7 | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 2 | 2 | 1 | | | |
| 53 | Per Month KWH | 2016 | 329.3 | 493.92 | 93.7 | 175.39 | 362.88 | 3200.4 | 19.2 | 7.2 | 172.8 | 115.2 | 4.8 | 604.8 | 40.3 | 1344 | 3360 | 84 | 24 | 179 | 768 | 134.4 | 358.1 | 4.32 | 134.28 | 48 | 35.808 | 177.6 | | 0 | | |

Table No.23: List of Electrical Equipments at Department of Electronics

| Sr no. | Name of Lab | Fan 60 w | Tube light | | | LED 6 W | LED 18 w | CFL 36x2 W | CFL 18x2 w | Tube Light 36 w | PC | Printer | Projector | Monitor | Dotmatrix Pri. | Ducting Cooler | Exhaust Fan | Wall Fan | AC Split | Ducting AC | Speaker | CRO | Water cooler | Zerom/C | Calibration M/c | Naplin/c |
|--------------|-------------------------------|----------|------------|------|------|---------|----------|------------|------------|-----------------|-------|---------|-----------|---------|----------------|----------------|-------------|----------|----------|------------|---------|------|--------------|---------|-----------------|----------|
| | | | T5 | 20w | 36x2 | | | | | | | | | | | | | | | | | | | | | |
| First Floor | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | HOD Office | 2 | | | | 1 | 2 | 2 | 4 | | 1 | 1 | | | | 1 | | | 1 | | | | | 1 | | |
| 2 | HOD Office | 4 | | | | | | 2 | 4 | | 1 | 1 | | | | | | | | | | | | | | |
| 3 | Dept. Library | 6 | | | | | | | 7 | | 1 | | 1 | | | | | 6 | 2 | | | | | | | |
| 4 | Faculty Room | 11 | | | | | | 6 | 17 | | 14 | | 1 | | | 1 | | | | | | | | | | |
| 5 | Toilet | | 2 | | | | | | | | | | | | | 1 | | | | | | | | | | |
| 6 | Faculty Room | | 2 | | | | | | | | 1 | 1 | | | | | 2 | | | | | | | | | |
| 7 | Conference Hall | 12 | | | | | | 8 | 18 | | 1 | | 1 | | | | | | 1 | 6 | | | | | | |
| 8 | PG Lab 102 | 6 | | | | | | 4 | 14 | | 25 | | | | | | | | | 1 | | | | | | |
| 9 | Faculty Room 101 | 2 | | | | | | | 6 | | 3 | | | | | | | 3 | 1 | | | | | | | |
| 10 | Faculty Room 110 | 3 | | | | | 2 | | 5 | | 2 | 1 | | | | | | | 1 | | | | | | | |
| 11 | PG Lab 111 | 7 | | | | | | 6 | 14 | | 23 | | 1 | | | | | | | | | | | | | |
| 12 | Electronics measurement 116 | 6 | | | | | | 6 | 14 | | 8 | | | | | | | | | | | 10 | | | | |
| 13 | AIC Lab 115 | 7 | | 1 | | | | 6 | 14 | | 8 | | | | | | | | | | | 26 | | | | |
| 14 | Passage | | | | | | 3 | | 13 | | | | | | | | | | | | | | 1 | | | |
| Ground Floor | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 | Reserch Lab | 3 | | | | | | | 6 | | 10 | | | | | | | | | | | | | | | 1 |
| 17 | Microprocessor Lab | 12 | | | | | 1 | 10 | 7 | | 37 | | | | | | | 2 | | 1 | | 2 | | | | |
| 18 | DSD Lab 005 B | 12 | | | | | | 10 | 8 | | 47 | 1 | 1 | | | 1 | | 2 | | | | | | | | |
| 19 | Gents Toilet | | | 1 | | | | | | | | | | | | 1 | | | | | | | | | | |
| 20 | Passage Right | | | | | | 3 | | 19 | | | | | | | | | | | | | | | | | |
| 21 | Passage Left | | | | | | 2 | | 14 | | | | | | | | | | | | | | 1 | | | |
| 22 | Workshop Lab | 6 | 2 | 4 | | | | | | | 12 | | | | | | | | | | | 2 | 4 | | | |
| 23 | Electronics Device 007B | 11 | 6 | 5 | | | | | 4 | | 11 | | | | | | | | | | | 8 | | | | |
| Second Floor | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 25 | Class Room 206 | 7 | 3 | 5 | | | | | | 1 | 1 | | 1 | | | | | | | | | | | | | |
| 26 | Class Room 207 | 7 | | 8 | | | | 2 | | | 1 | | 1 | | | | | | | | | | | | | |
| 27 | Class Room 208 | 11 | | | | | | 10 | 12 | | 1 | | 1 | | | | | | | | | | | | | |
| 28 | Class Room 209 | 7 | | 5 | | | | 2 | | | 1 | 1 | 1 | | | | | | | | | | | | | |
| 29 | Class Room 210 | 7 | 1 | 7 | | | | | | 1 | 1 | | 1 | | | | | | | | | | | | | |
| 30 | Class Room 211 | 8 | 3 | 4 | | | | | | 1 | 1 | | 1 | | | | | | | | | | | | | |
| 31 | Class Room 212 | 3 | 1 | 1 | | | | | | 1 | 1 | | 1 | | | | | | | | | | | | | |
| 32 | Passage Left | | 1 | | | | 3 | | 13 | | | | | | | | 1 | | | | | | 1 | | | |
| 33 | Girls Common Room | | | | | | | | 4 | | | | | | | | | 2 | | | | | | | | 1 |
| 34 | Students Activity Room | | | | | | | | 2 | | | | | | | | | 1 | | | | | | | | |
| 35 | Passage Right | | | | | | 4 | | 23 | | | | | | | | | | | | | | 1 | | | |
| Third Floor | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 37 | ET 325 | 6 | | | | | | 2 | 12 | | 25 | | | | | | | | | | | | | | | |
| 38 | Distance Education center 302 | 3 | | | | | | 6 | 10 | | 1 | | | | | | | | 1 | | | | | | | |
| 39 | Class Room 315 | 3 | | 2 | | | | | | | 1 | | 1 | | | | | | | | | | | | | |
| 40 | Class Room 315 B | 3 | | 2 | | | | | | | 1 | | 1 | | | | | | | | | | | | | |
| 41 | Passage left | | | | | | 3 | | 4 | | | | | | | | | | | | | | | | | |
| 42 | Toilet | | | 1 | | | | | | | | | | | | | 1 | | | | | | 1 | | | |
| 43 | Deshmukh sir Store Cabin | 1 | | 1 | 1 | | | 1 | | | 2 | 1 | | | | | | | | | | | | | | |
| 44 | Issue Counter | 2 | | 3 | | | | | | | 1 | 1 | | | | | | | | | | | | | | |
| 45 | Store Room | | 1 | 9 | | | | | | | | | | | | | | | | | | | | 1 | | |
| 46 | Passage | 1 | | 3 | | | | | | | | | | | | | | | | | | | | | | |
| 47 | Vastage Room | 1 | | 1 | | | | | | | | | | | | | | | | | | | | | | |
| 48 | Out Side | 0 | | 2 | | | | | | | | | | | | | | | | | | | | | | |
| 49 | Total | 180 | 22 | 65 | 1 | 1 | 23 | 83 | 261 | 5 | 243 | 7 | 14 | 3 | 2 | 2 | 6 | 18 | 6 | 3 | 8 | 50 | 5 | 2 | 1 | 1 |
| 50 | Watts | 60 | 28 | 20 | 72 | 6 | 18 | 72 | 36 | 36 | 150 | 100 | 100 | 100 | ### | 300 | 60 | 2000 | 2000 | 100 | 50 | 1500 | 500 | 100 | 200 | |
| 51 | Total Watts | ### | 616 | 1300 | 72 | 6 | 414 | 5976 | 9396 | 180 | 36450 | 700 | 1400 | 300 | ### | 1800 | 1080 | 12000 | 6000 | 800 | 2500 | 7500 | 1000 | 100 | 200 | |
| 52 | Per day Hrs | 7 | 7 | 7 | 7 | 2 | 7 | 7 | 7 | 7 | 7 | 1 | 2 | 24 | 2 | 12 | 7 | 7 | 2 | 2 | 1 | 7 | 1 | 1 | 1 | 1 |
| 53 | Per Month KWH | 1890 | 108 | 228 | 13 | 0.3 | 72 | 1046 | 1644 | 31.5 | 6379 | 17.5 | 70 | 180 | | 200 | 540 | 189 | 2100 | 300 | 40 | 62.5 | 1313 | 25 | 2.5 | 5 |

Table No.24: List of Electrical Equipments at Department of Electronics and Telecommunication

| Sr no. | Name of Lab | Fan 60 w | Tube light | | LE D 6 W | LE D 18 w | CFL 36x2 W | CFL 18x2 w | Tub e Ligh t 36 w | PC | Print er | Proj ecto r | Mon itor | Ductin g Cooler | TV | Exhau st Fan | Wal l Fan | AC Split | Spee ker | CRO | Zero x M/C | Hand Drill m/c |
|---------------------|-----------------------|----------|------------|------|----------|-----------|------------|------------|-------------------|-------|----------|-------------|----------|-----------------|------|--------------|-----------|----------|----------|------|------------|----------------|
| | | | T5 | 20 | | | | | | | | | | | | | | | | | | |
| Ground Floor | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Electronics Device 01 | 6 | 2 | 7 | | | | | | 10 | | | | | | | | | | 6 | | |
| 2 | Cumunication Lab | 11 | | 4 | | | 6 | 4 | 5 | | | | | | 8 | | | | | 10 | | |
| 3 | Micro vave Lab | 9 | 5 | 8 | | | 1 | | | 1 | | | | | | | | | | 10 | | |
| 4 | Programing 001A | 12 | | | | | 10 | 6 | | 41 | | 1 | | | | | 1 | 1 | | | | |
| 5 | Digital Signal 002A | 12 | | | | | 10 | 6 | | 42 | | 1 | 1 | | | | 1 | 1 | | | | |
| 6 | Faculty Room | 1 | | 1 | | | | | | 1 | | | | | | | 1 | | | | | |
| 7 | Passage | | | | | | | 10 | | | | | | | 1 | | | | | | | |
| First Floor | | | | | | | | | | | | | | | | | | | | | | |
| 8 | Dept. Library119 | 3 | | | | | | 10 | | 1 | | 1 | | | | | | 2 | | | | |
| 9 | HOD Office 118 | 3 | | | | | | 10 | | 3 | 2 | | 2 | | | | | 1 | | | 1 | |
| 10 | Faculty Room 117 | 3 | | 1 | | 1 | | 8 | | 4 | 2 | | | | | | | 2 | | | | |
| 11 | Faculty Room 112 | 11 | | 1 | | 1 | 6 | 20 | | 15 | 3 | | | 2 | | 1 | 5 | | | | | |
| Second Floor | | | | | | | | | | | | | | | | | | | | | | |
| 12 | ETC Dept.218 | 3 | | 3 | | | | | 3 | 7 | 1 | | | | | | 1 | | | | | |
| 13 | Class Room 217 | 7 | 1 | 5 | | | | | 1 | 1 | | 1 | | | | | | | | | | |
| 14 | Class Room 216 | 7 | | 7 | | | | | 3 | 1 | | 1 | | | | | | | | | | |
| 15 | Class Room 215 | 7 | 1 | 3 | | | | | 5 | 1 | | 1 | | | | | | | | | | |
| 16 | Class Room 201 | 10 | | | | | 9 | 12 | | 1 | | 1 | | | | | | | 2 | | | |
| 17 | Class Room 202 | 7 | | | | 1 | 5 | 9 | | 1 | | 1 | | | | | | | | | | |
| 18 | Class Room 203 | 7 | | 6 | | | | | 1 | 1 | | 1 | | | | | | | | | | |
| Third Floor | | | | | | | | | | | | | | | | | | | | | | |
| 19 | Class Room318 | 3 | 1 | 1 | | | | | | | | | | | | | | | | | | |
| 20 | PG Lab321 | 7 | 1 | 7 | | | | | 1 | 21 | 1 | | | | | | | | | | | |
| 21 | Anolog Circuit 317 | 6 | 2 | 3 | | | | | | 5 | | | | | | | | | | 10 | | |
| 22 | Project Lab 322 | 6 | 2 | 2 | | | | | | 6 | | | | | | | | | | 3 | | 2 |
| 23 | Class Room 316 | 6 | 10 | | | | | | | | | | | | | | | | | | | |
| 24 | Class Room 323 | 8 | 1 | 6 | | | | | | | | | | | | | | | | | | |
| 25 | Class Room 324 | 3 | 2 | 2 | | | | | | | | | | | | | | | | | | |
| 26 | Faculty Room 313 | 4 | | | | | 4 | 6 | | 3 | | | | | | | 1 | | | | | |
| 27 | Faculty Room 311 | 4 | | | | | 4 | 6 | | 3 | 1 | | | | | | | | | | | |
| 28 | Lab 309 | 4 | | | | | 4 | 12 | | 5 | | | | | | | 1 | 1 | | | | |
| 29 | Conference Hall 304 | 16 | | | | | 8 | 17 | | 1 | 1 | | | 2 | | | | | 4 | | | |
| 30 | Class Room 308 | 6 | | | | | 6 | 2 | | | | | | | | | | | | | | |
| 31 | Micro Controler 307 | 6 | | | | | 6 | | | 23 | 1 | | | | | | | 1 | | | | |
| 32 | Toilet | | | 1 | | | | | | | | | | | | 1 | | | | | | |
| 33 | Passage | | | | | 3 | | 23 | | | | | | | 1 | | | | | | | |
| 34 | Total | 198 | 28 | 68 | 0 | 6 | 79 | 161 | 19 | 198 | 12 | 9 | 3 | 4 | 9 | 3 | 11 | 9 | 6 | 39 | 1 | 2 |
| 35 | Watts | 60 | 28 | 20 | 6 | 18 | 72 | 36 | 36 | 150 | 100 | 100 | 100 | 2000 | 200 | 300 | 60 | 2000 | 100 | 50 | 500 | 100 |
| 36 | Total Watts | 11880 | 784 | 1360 | 0 | 108 | 5688 | 5796 | 684 | 29700 | 1200 | 900 | 300 | 8000 | 1800 | 900 | 660 | 18000 | 600 | 1950 | 500 | 200 |
| 37 | Per day Hrs | 7 | 7 | 7 | 2 | 7 | 7 | 7 | 7 | 7 | 2 | 2 | 24 | 2 | 2 | 12 | 7 | 7 | 2 | 2 | 2 | 1 |
| 38 | Per MonthKWH | 1995.8 | 132 | 228 | 0 | 18 | 955.6 | 974 | 115 | 4990 | 57.6 | 43.2 | 173 | 384 | 86.4 | 259.2 | 111 | 3024 | 29 | 93.6 | 24 | 4.8 |

Table No.25: List of Electrical Equipments at Department of Information Technology

| Sr no. | Name of Lab | Fan 60 w | Tube light | | CFL 1x18 w | LED 18 w | PC | Printer | Projector | Monitor | Ducting Cooler | TV | Exhaust Fan | Wall Fan | AC Split | Zero x M/C |
|---------------------|---------------------|----------|------------|-----|------------|----------|-------|---------|-----------|---------|----------------|-----|-------------|----------|----------|------------|
| | | | T5 | 20 | | | | | | | | | | | | |
| Second Floor | | | | | | | | | | | | | | | | |
| 1 | Software Engg Lab | 10 | | | 14 | | 20 | | | | | | | | | |
| 2 | Advance NetWorking | 6 | | | 13 | | 20 | | | | | | | | | |
| 3 | Project Lab | 10 | | | 14 | | 21 | 1 | | 1 | | | | | | |
| 4 | Staff Room | 1 | | | 3 | 1 | 1 | | | | | | | | | |
| 5 | Staff Room 2 | | | | 8 | | 2 | 1 | | | | | | 3 | | |
| 6 | Ladies Toilet | | 2 | 2 | | | | | | | | | 1 | | | |
| 7 | Passage | | | | 18 | | | | | | 5 | 1 | | | | |
| 8 | HOD Office | | | | 11 | | 2 | 2 | | 1 | | | | | 1 | 1 |
| 9 | Dept. Library | 3 | | | 8 | | 2 | | 1 | | | | | | 2 | |
| 10 | ACL Lab | 8 | | | 15 | | 22 | 1 | | | | | | 1 | 1 | |
| 11 | Tutorial Room | 3 | | | 8 | | | | 1 | | | | | | | |
| 12 | IT Staff Room 1 | 10 | | | 14 | | 23 | | | | | | | | | |
| Third Floor | | | | | | | | | | | | | | | | |
| 13 | Open Source Lab | 10 | | | 14 | | 21 | | 1 | | | | | | | |
| 14 | Com. Program Lab2 | 7 | | | 13 | | 20 | | | | | | | | | |
| 15 | Com. Program Lab1 | 10 | | | 14 | | 22 | | | 1 | | | | | | |
| 16 | Staff Room 3 | 2 | | 2 | | | 5 | 1 | | | | | | 3 | | |
| 17 | Gentes Staff Room | | | | | | | | | | | | | | | |
| 18 | Class Room 309 | | 3 | 1 | | | | | | | | | | | | |
| 19 | Class Room 302 | 9 | 4 | 2 | | | | | 1 | | | | | | | |
| 20 | Class Room 301 | 9 | 4 | 3 | | | | | 1 | | | | | | | |
| 21 | Tutorial Room | 9 | 3 | 5 | | | | | 1 | | | | | | | |
| 22 | Passage | 2 | 2 | 1 | | | | | 1 | | | | | | | |
| 23 | 311 | | | 8 | | 6 | | | | | 3 | | | | | |
| First Floor | | | | | | | | | | | | | | | | |
| 24 | Class Room 102 | 6 | 1 | 3 | | | | | | | | | | | | |
| 25 | Class Room 107 | 6 | 2 | 3 | | | | | | | | | | | | |
| 26 | Class Room 105 | 6 | 2 | 3 | | | | | | | | | | | | |
| 27 | Toilet | | | 2 | | | | | | | | | | | | |
| 28 | Passage | | 5 | 2 | | | | | | | | | | | | |
| 29 | Student Activity | | | | | | | | | | | | | | | |
| 30 | Engg Graphics | | | | | | | | | | | | | | | |
| 31 | Total | 127 | 28 | 37 | 167 | 7 | 181 | 6 | 7 | 3 | 8 | 1 | 1 | 7 | 4 | 1 |
| 32 | Watts | 60 | 28 | 20 | 18 | 18 | 150 | 100 | 100 | 100 | 2000 | 200 | 300 | 60 | 2000 | 500 |
| 33 | Total Watts | 7620 | 784 | 740 | 3006 | 126 | 27150 | 600 | 700 | 300 | 16000 | 200 | 300 | 420 | 8000 | 500 |
| 34 | Per day Hrs | 7 | 7 | 7 | 7 | 7 | 7 | 1 | 2 | 24 | 2 | 2 | 12 | 7 | 7 | 2 |
| 35 | Per MonthKWH | 1280 | 132 | 124 | 505 | 21 | 4561 | 14 | 33.6 | 173 | 768 | 9.6 | 86.4 | 70.6 | 1344 | 24 |

Table No.26: List of Electrical Equipments at Department of Old Science

| Sr no. | Name of Lab | Fan 60 w | Tube light | | | CFL 18x2 w | LED 15 w | LED 9 w | PC | Printer | Scanner | Monitor | Water Cooler | Exhaust Fan | Wall Fan | AC Split | Oven | Oven | sodium lamp |
|---------------------|---------------------|----------|------------|------|--------|------------|----------|---------|-------|---------|---------|---------|--------------|-------------|----------|----------|------|------|-------------|
| | | | T5 | 36 | LED 20 | | | | | | | | | | | | | | |
| Ground Floor | | | | | | | | | | | | | | | | | | | |
| 1 | SC-004 | 1 | 1 | 1 | | | | 3 | | | | | | | | | | | |
| 2 | SC-006 | 1 | | | 2 | | | 1 | 1 | | | | | | | | | | |
| 3 | SC-005 | 1 | | | 2 | | | 1 | 1 | | | | | | | | | | |
| 4 | Porch | | | | 1 | | | | | | | | | | | | | | |
| 5 | Gentes Toilet | | | | 1 | | | | | | | | 1 | | | | | | |
| 6 | Students Toilet | | | | 1 | | | | | | | | 1 | | | | | | |
| 7 | Class Room | 6 | | | 8 | | | | | | | | | | | | | | |
| 8 | Class Room | 6 | 1 | 6 | 6 | | | | | | | | | | | | | | |
| 9 | Chemistry Lab | 1 | | | 2 | | | | | | | | | | | | | | |
| 10 | Chemistry Lab | 6 | | 8 | 3 | | | | | | | | | 2 | | | 2 | 1 | |
| 11 | Staff Room | 1 | | 3 | 1 | | | 1 | | | | | | | | | | | |
| 12 | Class Room | 2 | | 1 | 2 | | | | | | | | | | | | | | |
| 13 | Staff Room | 3 | 2 | 2 | 1 | | | 4 | | | | | | | | | | | |
| 14 | Class Room | 9 | 1 | | | 16 | | | | | | | | | | | | | |
| 15 | Passage | | | | 4 | | | | | | | 1 | | | | | | | |
| First Floor | | | | | | | | | | | | | | | | | | | |
| 16 | Cabin | 1 | | 2 | | | | 3 | 1 | | | | | | 2 | | | | |
| 17 | Cabin | 1 | | 2 | | | | 1 | 1 | 1 | 1 | | | | | | | | |
| 18 | Cabin | 1 | | 1 | 1 | | | 2 | 1 | | | | | | | | | | |
| 19 | Toilet Gents | | | | 1 | | | | | | | | | | | | | | |
| 20 | Ladies Toilet | | | | 1 | | | | | | | | 2 | 1 | | | | | |
| 21 | Class Room | 7 | | 4 | 2 | | | | | | | | | | | | | | |
| 22 | Lab | 6 | | 9 | 3 | | | 1 | | | | | | | | | 1 | | |
| 23 | Class Room | 10 | | | | 16 | | | | | | | | | | | | | |
| 24 | Lab | 6 | 1 | 8 | 3 | | | | | | | | | | | | | | |
| 25 | Dark Room | 2 | | 2 | | | | | | | | | 1 | | | | | | 5 |
| 26 | Staff Room | 1 | 1 | 2 | | | | 1 | | | | | | | | | | | |
| 27 | Lab | 1 | | 1 | | | | | | | | | | | | | | | |
| 28 | Lab | 1 | | 2 | | | | 1 | | | | | | | | | | | |
| 29 | Lab | 2 | 2 | | | | | | | | | | 1 | | | | | | 4 |
| 30 | Passage | | | 2 | 2 | | | | | | | | | | | | | | |
| Second Floor | | | | | | | | | | | | | | | | | | | |
| 31 | Room no-205 | 2 | | 1 | 2 | | | 2 | 1 | | | | | | | | | | |
| 32 | Room no-206 | 1 | | | 2 | | | 1 | | | | | | | 1 | | | | |
| 33 | Room no-207 | 1 | 1 | | 1 | | | 2 | 1 | | | | | | | | | | |
| 34 | Room no-208 | 7 | 2 | 3 | 2 | | | | | | | | | | | | | | |
| 35 | Gentes Toilet | | | | 1 | | | | | | | | | | | | | | |
| 36 | Students Toilet | | | | 1 | | | | | | | | 1 | | | | | | |
| 37 | Language Lab | 6 | | | | | 12 | 36 | 1 | | | | 1 | | 3 | | | | |
| 38 | Class Room | 7 | 1 | 2 | 3 | | | | | | | | | | | | | | |
| 39 | Class Room | 10 | | | | 12 | | | | | | | | | | | | | |
| 40 | Class Room | 9 | | 1 | 4 | | | | | | | | | | | | | | |
| 41 | First year co-or | 1 | | | | | 3 | | | | | | | | | | | | |
| 42 | Passage | 1 | 2 | | 3 | | | | | | | | | | | | | | |
| Third Floor | | | | | | | | | | | | | | | | | | | |
| 43 | Toilet Gents | | | | 1 | | | | | | | | | | | | | | |
| 44 | Ladies Toilet | | | | 2 | | | | | | | | 1 | | | | | | |
| 45 | Staff Room | 4 | | | | | | 7 | 5 | | | | 2 | | | | | | |
| 46 | Class Room | 7 | | | | | | 15 | | | | | | | | | | | |
| 47 | Room 304 | 5 | | | | | | 3 | | | | | | | | | | | |
| 48 | Room 303 | 9 | | | | | | 15 | | | | | | | | | | | |
| 49 | Room310 | 9 | | | | | | 15 | | | | | | | | | | | |
| 50 | Room 311 | 5 | | | | | | 12 | | | | | | | | | | | |
| 51 | Room 301 | 9 | | | | | | 16 | | | | | | | | | | | |
| 52 | Room 302 | 7 | | | | | | 6 | 5 | 1 | | | | | | | | | |
| 53 | Total | 175 | 15 | 63 | 69 | 44 | 15 | 89 | 70 | 9 | 1 | 1 | 14 | 5 | 3 | 3 | 1 | 9 | |
| 54 | Watts | 60 | 28 | 36 | 20 | 36 | 15 | 9 | 150 | 100 | 100 | 100 | 1500 | 300 | 60 | 2000 | 2000 | 1000 | 250 |
| 55 | Total Watts | 10500 | 420 | 2268 | 1380 | 1584 | 225 | 801 | 10500 | 900 | 100 | 1500 | 4200 | 300 | 6000 | 6000 | 1000 | 2250 | |
| 56 | Per day Hrs | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 1 | 1 | 24 | 7 | 12 | 7 | 7 | 2 | 2 | 2 |
| 57 | Per MonthKWH | 1764 | 71 | 381 | 231.8 | 266 | 38 | 135 | 1764 | 22 | 2.4 | 57.6 | 252 | 1210 | 50.4 | 1008 | 288 | 48 | 108 |

Table No.28: List of Electrical Equipments at Department of Mechanical

| Sr no. | Name of Lab | Fan 60 w | Tube light | | | | 36x | 18x2 w | PC | Printer | Projector | Monitor | Cooler | Exhaust Fan | Window AC | AC Split | 2x10 M/C | Sundry M/C |
|---------------------|----------------------------|----------|------------|-----|-------|-----|-----|--------|-------|---------|-----------|---------|--------|-------------|-----------|----------|----------|------------|
| | | | T5 | 36 | 36x 2 | 20 | | | | | | | | | | | | |
| Ground Floor | | | | | | | | | | | | | | | | | | |
| 1 | Mech Dept. Library | 4 | | 6 | | 2 | | 3 | 1 | | | | | | | | | |
| 2 | Toilet 010 | | | | | 1 | | | | | | | | 1 | | | | |
| 3 | Toilet 009 | | | | | 1 | | | | | | | | 1 | | | | |
| 4 | Lab | 4 | | 1 | 3 | 2 | | 3 | | | | | | | | | | |
| 5 | Class Room | 2 | | 2 | | | | 1 | | | | | | | | | | |
| 6 | Cad Lab | 11 | | | | | 24 | 36 | 1 | 1 | | | | | 3 | | | |
| 7 | First Floor | | | | | | | | | | | | | | | | | |
| 8 | HOD Office 109 | 2 | | 1 | | 1 | | 1 | | | 2 | | | | 1 | | | |
| 9 | Staff Room 107 | 1 | | | | 2 | | 1 | 1 | | | | | | | | | |
| 10 | Room No 108 | 1 | | 2 | | | | | | | | | | | | | 1 | |
| 11 | Class Room 106 | 8 | | | | | 6 | 1 | | 1 | | | | | | | | |
| 12 | Class Room 101A | 2 | | 3 | | | | | | | | | | | | | | |
| 13 | Class Room 101B | 2 | | 2 | | 2 | | | | | | | | | | | | |
| 14 | Staff Room 102 | 2 | 1 | 1 | | 2 | | 6 | 1 | | | | | | | | | |
| 15 | Center of Excellence 105A+ | 2 | | 6 | | | 6 | 10 | | | | | | 4 | | | | |
| 16 | Lab 103 | 4 | | 6 | | | | | | | | | | | | | | |
| 17 | Lab 104A | 2 | 1 | | | 1 | | | | | | | | | | | | |
| 18 | Lab 104 | 5 | | 10 | | | | | | | | | | | | | | |
| 19 | Passage | 1 | | 1 | | 1 | | | | | | 1 | | | | | | |
| 20 | Toilet Ladies 111 | | | | | 1 | | | | | | | | | | | | |
| 21 | Gentes Toilet 110 | | | 1 | | | | | | | | | | | | | | |
| 22 | Second Floor | | | | | | | | | | | | | | | | | |
| 22 | Class Room 206 | 5 | 3 | 4 | | 1 | | | | | | | | | | | | |
| 23 | Class Room 202 | 7 | 1 | 5 | | | | | | | | | | | | | | |
| 24 | Class Room 205 | 5 | | 3 | | 3 | | | | | | | | | | | | |
| 25 | Class Room 201 | 9 | | | | | 11 | | | | | | | | | | | |
| 26 | Class Room 204 | 7 | | 4 | | 5 | | | | | | | | 1 | | | | |
| 27 | Staff Room 203 | 2 | 1 | 1 | | 2 | | 3 | | | | | | | | | | |
| 28 | Staff Room 209 | 2 | | | | 2 | | 3 | | | | | | | | | | |
| 29 | Room No 208 | 1 | | 1 | | 1 | | | | | | | | | | | | |
| 30 | Room No 207 | 1 | | 1 | | 1 | | | | | | | | | | | | |
| 31 | Toilet 210 | | | | | 1 | | | | | | | | | | | | |
| 32 | Toilet 211 | | | | | 1 | | | | | | | | | | | | |
| 33 | Third Floor | | | | | | | | | | | | | | | | | |
| 33 | Class Room 307 | 9 | | | | 10 | | | | | | | | | | | | |
| 34 | Class Room 303 | 9 | | | | 9 | | | | | | | | | | | | |
| 35 | Class Room 306 | 9 | | | | 10 | | | | | | | | | | | | |
| 36 | Class Room 305 | 9 | | | | 10 | | | | | | | | | | | | |
| 37 | Class Room 301 | 9 | | | | 10 | | | | | | | | | | | | |
| 38 | Class Room 302 | 6 | | | | 2 | | 9 | | | | | | | | | | |
| 39 | Class Room 304 | 2 | | | | 2 | | 1 | 1 | | | | | | | | | |
| 40 | Passage | | | | | 6 | | | | | | | | | | | | |
| 41 | Boys Toilet | | | | | 1 | | | | | | | | | | | | |
| 42 | Toilet 309 | | | | | 1 | | | | | | | | | | | | |
| 43 | Staff Room 308 | 4 | | | | 2 | | | | | | | | | | | | 2 |
| 44 | Total | 149 | 7 | 61 | 3 | 96 | 12 | 35 | 78 | 5 | 2 | 2 | 1 | 7 | 4 | 4 | 1 | 2 |
| 45 | Watts | 60 | 28 | 36 | 72 | 20 | 72 | 36 | 150 | 100 | 100 | 100 | 1500 | 300 | 2000 | 2000 | 500 | 1000 |
| 46 | Total Watts | 8940 | 196 | ### | 216 | ### | 864 | 1260 | 11700 | 500 | 200 | 200 | 1500 | 2100 | 8000 | 8000 | 500 | 2000 |
| 47 | Per day Hrs | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 1 | 1 | 24 | 7 | 12 | 7 | 7 | 1 | 1 |
| 48 | Per MonthKWH | 1502 | 33 | 369 | 36 | 323 | 145 | 212 | 1966 | 12 | 4.8 | 115 | 252 | 604.8 | 1344 | 1344 | 12 | 48 |

Table No.29: List of Electrical Equipments at Department of Electrical

| Sr no. | Name of Lab | Fan 60 w | Tube light | | LED | LE D 15 w | LE D 12 w | CFL 36x 2 | CFL 18x2 w | PC | Printer | Projector | Wall Fan | Exhaust Fan | AC Split | Motor 5 hp | Load 5 kw | Reh ostate 500 w | Load 10 kw | Rheo state |
|--------|-----------------------|----------|------------|------|------|-----------|-----------|-----------|------------|-------|---------|-----------|----------|-------------|----------|------------|-----------|------------------|------------|------------|
| | | | T5 | 36 | | | | | | | | | | | | | | | | |
| 1 | Ground Floor | | | | | | | | | | | | | | | | | | | |
| 2 | EL 001 | 2 | | 1 | 2 | | | | | 2 | | | | | | | | | | |
| 3 | EL 002 | 8 | | | 9 | | | | | 10 | | | | | | | | | | |
| 4 | EL 003 | 2 | | | | 2 | 2 | | 9 | 3 | 2 | | | | 1 | | | | | |
| 5 | EL 004 | 4 | | | | | | | 12 | | | | | | 2 | | | | | |
| 6 | EL 005 | 4 | 1 | 5 | 26 | | | | | 26 | | 1 | | | 2 | | | | | |
| 7 | EL 012 | 4 | | 7 | | | | | | | | | | | | | | | | 1 |
| 8 | EL 006 | 10 | 8 | 4 | 1 | | | | | 1 | | | | | | 30 | 2 | 4 | 1 | |
| 9 | EL 011 | 2 | | | | | | | | | | | | | | | | | | |
| 10 | EL 007 A+B | 8 | | | 40 | | | | 24 | 40 | | 1 | | | | | | | | |
| 11 | EL 010 | 2 | | 8 | | | | | | | | | 7 | 2 | | | | | | |
| 12 | EL 008 | 4 | | 10 | 1 | | | | | 1 | | | | | | | 1 | | | |
| 13 | EL 009 | 4 | 1 | 7 | 1 | | | | | 1 | | | | | | 8 | | | | |
| 14 | Passage | | | 1 | | | | | | | | | | | | | | | | |
| 15 | Toilet & Pannel | | | | | | | | | | | | | 1 | | | | | | |
| 16 | EL 101 | 2 | | 1 | 2 | | | | | 2 | | | | | | | | | | |
| 17 | EL 102 | 4 | | 6 | | | | | | | | | | | | | | | | |
| 18 | EL 103 | 7 | | | | | | | | | | | | | | | | | | |
| 19 | Toilet 114 A | | | | | | | | | | | | | 1 | | | | | | |
| 20 | Room No 202 | 2 | | | 4 | | | 5 | | 4 | 2 | | | | | | | | | |
| 21 | Staff Room | 2 | | | 4 | | | 6 | | 4 | | | 3 | | | | | | | |
| 22 | Class Room 204 | 5 | | 1 | | | | | | | | | | | | | | | | |
| 23 | EL 205 B | 12 | 13 | | | | | | | | | | | | | | | | | |
| 24 | EL 212 | | | | | | | | | | | | | | | | | | | |
| 25 | EL 205A | 6 | | | | | | | | | | | | 1 | | | | | | |
| 26 | EL 213 B | | | | | | | | | | | | | | | | | | | |
| 27 | EL 206 | 5 | | | | | | | | | | | | | | | | | | |
| 28 | EL 207 | 6 | | | | | | | | | | | | | | | | | | |
| 29 | EL 208 | 5 | | 2 | | | | | | | | | | | | | | | | |
| 30 | Passage | | | | | | | | | | | | | | | | | | | |
| 31 | EI 307 | 4 | | | | | | 6 | | | | | | | | | | | | |
| 32 | Power Electronics Lab | 5 | | | | 5 | | 5 | | | | | | | | | | | | |
| 33 | EL 310 | 5 | | | | | | 7 | | | | | | | | | | | | |
| 34 | EL 311 | 7 | | | | | | 9 | | | | | | | | | | | | |
| 35 | EL 312 | 2 | | | | | | 8 | | | | | | | | | | | | |
| 36 | EL 308 | 4 | | | | 2 | | 6 | | | | | | | | | | | | |
| 37 | Passage | | | | | 1 | | 3 | | | | | | | | | | | | |
| 38 | Girls Toilet | | | | 1 | | | | | | | | | | | | | | | |
| 39 | EI 304 | 8 | | 6 | 2 | | | | | | | | | | | | | | | |
| 40 | Total | 145 | 23 | 59 | 93 | 10 | 2 | 11 | 89 | 94 | 4 | 2 | 10 | 5 | 5 | 38 | 3 | 4 | 1 | 1 |
| 41 | Watts | 60 | 28 | 36 | 20 | 15 | 12 | 72 | 36 | 150 | 100 | 100 | 60 | 300 | 2000 | 3730 | 5000 | 500 | 10000 | 200 |
| 42 | Total Watts | 8700 | 644 | 2124 | 1860 | 150 | 24 | 792 | 3204 | 14100 | 400 | 200 | 600 | 1500 | 10000 | 1E+05 | 15000 | 2000 | 10000 | 200 |
| 43 | Per day Hrs | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 1 | 1 | 7 | 12 | 7 | 2 | 2 | 2 | 2 | 2 |
| 44 | Per MonthKWH | 1462 | 108 | 357 | 312 | 25 | 4 | 133 | 538 | 2369 | 9.6 | 4.8 | 101 | 432 | 1680 | 6804 | 720 | 96 | 480 | 9.6 |

Table No.30: List of Electrical Equipments at Admin Building

| Sr no. | Name of Lab | Fan 60 w | Tube light | | | LED | LED 15 w | LED 20 w | LED 12 w | CFL 1x1 8 w | LED 5 w | LED 9 w | CFL 36x2 w | CFL 18x2 w | PC | Printer | Projector | Monitor | Wall Fan | Table Fan | Water Cooler | RO | Exhaust Fan | AC Split | Zero x M/C | Ducting Cooler | Scanner | Freez | Table AC | TV | | | | | |
|--------|---------------------|----------|------------|-------|-------|------|----------|----------|----------|-------------|---------|---------|------------|------------|-------|---------|-----------|---------|----------|-----------|--------------|------|-------------|----------|------------|----------------|---------|-------|----------|-----|-----|---|---|---|---|
| | | | T5 | 36 | 2x3 6 | | | | | | | | | | | | | | | | | | | | | | | | | | 20 | | | | |
| 1 | AD 105 | | 1 | | | | | | | | | | | | | | | | | | 1 | 1 | | | 2 HP | | | | | | | | | | |
| 2 | Principal Office | 2 | 3 | | | | 9 | 1 | | | | | | 1 | 1 | | | | | | | | 1 | | | | | | | | | | | | |
| 3 | AD 115 | | | | 1 | | | | 4 | | | | | 1 | 1 | | | | | | | | | | | | | | | | | | | | |
| 4 | AD 103 | 1 | | | | | | | 4 | | | | | | | | | | 1 | | | | | | | | | | | | | | | | |
| 5 | AD 104 | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | |
| 6 | AD 102 | 1 | | 4 | | | | | 6 | | | | | 2 | 1 | | | | | | | | | 1 | | | | | | | | | | | |
| 7 | AD 101 | 1 | | | | | | | | | | | 6 | 1 | 1 | | | | | | | | | 1 | | | | | | | | | | | |
| 8 | Passage | 2 | 3 | | | 3 | 2 | | | | 10 | 3 | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | Porch | | | | | 2 | | | | | | 8 | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | Information Res | 4 | | 9 | | | | | | | | 4 | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | Wankhede mad | 1 | | 2 | | | | | | | | | | 2 | 1 | | | | | | | | 1 | | | | | | | | | | | | |
| 12 | AD 120 | 16 | | 5 | | 34 | | | | | | | 11 | 41 | | | | | 2 | 1 | | | | | 4 | | | | | | | | | | |
| 13 | Library | 14 | | 8 | | 24 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | AD 014 | 2 | | 2 | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | Thakre Sir | 1 | | | | 1 | | | | | | | | 4 | 1 | | | | | | | | | | | 1 | | | | | | | | | |
| 16 | AD 013 | 9 | | 15 | | 9 | | | | | | | | | | | | | 1 | | | 1 | | 1 | | | | | | | | | | | |
| 17 | AD 222 | 1 | | | | | | | | | | | 4 | 1 | 1 | | | | | | | | 1 | | | | | | | | | | | | |
| 18 | Passage | 2 | | | | 2 | | | | | | | 4 | 4 | | | | | | | | | | | | | | | | | | | | | |
| 19 | AD 212 | 1 | | | | | | | | | | | 4 | 1 | 1 | | | | | | | | 1 | | | | | | | | | | | | |
| 20 | AD 213 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 21 | AD 213 B | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | |
| 22 | AD 214 | 1 | | | | | | | | | | | 4 | 1 | 1 | | | | | | | | 1 | | | | | | | | | | | | |
| 23 | AD 215 | 1 | | | | | | | | | | | 4 | 1 | 1 | | | | | | | | 1 | | | | | | | | | | | | |
| 24 | AD 216 | 1 | | | | | | | | | | | 4 | 1 | 1 | | | | | | | | 1 | | | | | | | | | | | | |
| 25 | AD 217 | 1 | | | | | | | | | | | 4 | 1 | 1 | | | | | | | | 1 | | | | | | | | | | | | |
| 26 | AD 218 | 1 | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | |
| 27 | Passage | | | | | | 1 | | | | | | 5 | | | | | | | | | | | | | | | | | | | | | | |
| 28 | AD 211 | | | | | 2 | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | |
| 29 | AD 221 | 11 | | 12 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 30 | Stear Case Library | | | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 31 | AD 118 | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 32 | Porch | | | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 33 | AD 201 | 2 | | | | | | | | | | | 2 | | 1 | 1 | | | | | | | | 1 | | | | | | | | | | | |
| 34 | Students Placem | 2 | | | | | | | | | | | 2 | | | | | | | | | | | 1 | | | | | | | | | | | |
| 35 | AD 202 | 4 | | | | | | | | | | | 6 | | 3 | 1 | | | | | | | | | | | | | | | | | | | |
| 36 | Electrical Engg I | 9 | | 12 | | | | | | | | | 11 | | | | | | | | | | | | | | | | | | | | | | |
| 37 | Inovetion Galler | 6 | | | | | | | | | | 63 | 15 | | | | | | | | | | | | | | | | | | | | | | |
| 38 | Passage | | | 2 | | | | | | | | | 3 | | | | | | | | | | | | | | | | | | | | | | |
| 39 | Main Passage | 2 | | | | | | | | | | | 9 | | | | | | | | | | | | | | | | | | | | | | |
| 40 | Admin Office | 11 | | | | 2 | 12 | | | | | | 16 | 16 | 13 | | | | | | | | | | | | | | 2 | | | | | | |
| 41 | Passage | 3 | | | | | 1 | 3 | | | | | 4 | 1 | | | | | | | | | | | 1 | | | | | | | | | | |
| 42 | Toilet | | | | | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 43 | A O Office | 1 | | | | | | | | | | | 5 | 1 | 1 | | | | | | | | | 1 | | | | | | 1 | | | | | |
| 44 | AD 005 | 1 | | | | 1 | | | | | | | 4 | | | | | | | | | | | | | | | | | | | | | | |
| 45 | Record Room | 2 | | | | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 46 | ERP 006 | 2 | | 2 | | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 47 | Scholarship Sec | 2 | | | | | | 1 | | | | | 2 | 2 | 1 | | | | | | | | | | | | | | | | | | | | |
| 48 | Admission Room | 4 | 9 | | | | 1 | | | | | | 6 | 4 | | | | | | | | | | | 1 | | | | | | | | 2 | 1 | |
| 49 | Board Room | 6 | | | | | 26 | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 |
| 50 | Total | 132 | 18 | 68 | 12 | 88 | 52 | 5 | 10 | 4 | 73 | 30 | 10 | 110 | 92 | 31 | | 1 | 1 | 16 | 2 | 1 | 1 | 4 | 20 | 3 | 6 | 1 | 2 | 2 | 2 | 2 | | | |
| 51 | Watts | 60 | 28 | 36 | 72 | 20 | 15 | 20 | 12 | 18 | 5 | 9 | 72 | 36 | 150 | 100 | 100 | 100 | 60 | 60 | 1500 | 100 | 300 | 2000 | 500 | 1492 | 100 | 500 | 2000 | 200 | 200 | | | | |
| 52 | Total Watts | 7920 | 504 | 2448 | 864 | 1760 | 780 | 100 | 120 | 72 | 365 | 270 | 720 | 3960 | 13800 | 3100 | 100 | 100 | 960 | 120 | 1500 | 100 | 1200 | 40000 | 1500 | 8952 | 100 | 1000 | 4000 | 400 | 400 | | | | |
| 53 | Per day Hrs | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 1 | 1 | 24 | 2 | 2 | 7 | 7 | 12 | 7 | 7 | 4 | 1 | 7 | 4 | 4 | 2 | | | | |
| 54 | Per MonthKWH | 1331 | 85 | 411.3 | 145 | 296 | 131 | 17 | 20 | 12 | 61 | 45 | 121 | 665 | 2318 | 74.4 | 2.4 | 57.6 | 46.1 | 5.76 | 252 | 16.8 | 345.6 | 6720 | 252 | 859.4 | 2.4 | 168 | 384 | 19 | | | | | |

Table No.31: Monthly utilization of Electricity

| Sr. No. | Months /Year | Total Units | Amount (Rs) |
|---------|--------------|-------------|-------------|
| 1 | Jan-16 | 350 | 92840 |
| 2 | Feb-16 | 350 | 92840 |
| 3 | Mar-16 | 350 | 94160 |
| 4 | Apr-16 | 385 | 112640 |
| 5 | May-16 | 385 | 125620 |
| 6 | Jun-16 | 385 | 132660 |
| 7 | Jul-16 | 385 | 99440 |
| 8 | Aug-16 | 385 | 119460 |
| 9 | Sep-16 | 385 | 109560 |
| 10 | Oct-16 | 385 | 102080 |
| 11 | Nov-16 | 385 | 106220 |
| 12 | Dec-16 | 385 | 106220 |
| 13 | Jan-17 | 385 | 106220 |
| 14 | Feb-17 | 385 | 106220 |
| 15 | Mar-17 | 385 | 116325 |

Table No.32: Carbon Footprint based on Electrical Consumption

| Sr. No. | Months /Year | Total Units | Amount (Rs) | CO ₂ Emission (kt) |
|---------|--------------|-------------|-------------|-------------------------------|
| 1 | Jan-16 | 350 | 92840 | 280 |
| 2 | Feb-16 | 350 | 92840 | 280 |
| 3 | Mar-16 | 350 | 94160 | 280 |
| 4 | Apr-16 | 385 | 112640 | 308 |
| 5 | May-16 | 385 | 125620 | 308 |
| 6 | Jun-16 | 385 | 132660 | 308 |
| 7 | Jul-16 | 385 | 99440 | 308 |
| 8 | Aug-16 | 385 | 119460 | 308 |
| 9 | Sep-16 | 385 | 109560 | 308 |
| 10 | Oct-16 | 385 | 102080 | 308 |
| 11 | Nov-16 | 385 | 106220 | 308 |
| 12 | Dec-16 | 385 | 106220 | 308 |
| 13 | Jan-17 | 385 | 106220 | 308 |
| 14 | Feb-17 | 385 | 106220 | 308 |
| 15 | Mar-17 | 385 | 116325 | 308 |

VII] Energy Audit: B) Solar Audit

The sun is an incredible and renewable resource that has the power to fuel life on earth and provide clean, sustainable energy to all of its inhabitants. In fact, more energy from the sun reaches our planet in one hour than is used by the entire population of the world in one year. The potential for solar energy is enormous, since about 200,000 times the world's total daily electric-generating capacity is received by Earth every day in the form of solar energy. The college campus is having Solar panels installed on rooftop of each of the departmental building. The electricity generated is further directed to the adjacent polytechnic college premises where the required electric energy is utilized and the remaining unutilized is led to the powergrid. The data regarding Solar energy generation was measured to understand the solar energy potential at YCCE campus.

Table No.34: Solar Energy Potential and CO₂ Emission

| Sr. No. | Months /Year | Total Units | Amount (Rs) | CO ₂ Emission (kt) |
|---------|--------------|-------------|-------------|-------------------------------|
| 1 | Jan-16 | 350 | 92840 | 280 |
| 2 | Feb-16 | 350 | 92840 | 280 |
| 3 | Mar-16 | 350 | 94160 | 280 |
| 4 | Apr-16 | 385 | 112640 | 308 |
| 5 | May-16 | 385 | 125620 | 308 |
| 6 | Jun-16 | 385 | 132660 | 308 |
| 7 | Jul-16 | 385 | 99440 | 308 |
| 8 | Aug-16 | 385 | 119460 | 308 |
| 9 | Sep-16 | 385 | 109560 | 308 |
| 10 | Oct-16 | 385 | 102080 | 308 |
| 11 | Nov-16 | 385 | 106220 | 308 |
| 12 | Dec-16 | 385 | 106220 | 308 |
| 13 | Jan-17 | 385 | 106220 | 308 |
| 14 | Feb-17 | 385 | 106220 | 308 |
| 15 | Mar-17 | 385 | 116325 | 308 |

VII] Energy Audit: C) Sound Audit

Sound is all around us and can be measured to inform and protect us, as some sounds are not safe. In fact, loud noise can be very damaging to hearing. The level of noise, where a person is in relation to the noise (distance to the noise), and the amount of time they listen to it can all result in risk for hearing loss. Sound can be measured with a device called a decibel meter. Sound is measured in units called decibels (dB). A Sound Level Meter (SLM) is an instrument (commonly hand-held) that is designed to measure sound levels in a standardized way.

The noise level was measured at different locations within the campus to understand the noise pollution level points and the calm zones. This help understand the sound level conforms to the prescribed range in daytime and night time in the educational institute.



Satellite Imagery No. 11: Sampling Locations of Sound Component

Table No.35: Sound Level Standard

| CPCB Standards of Noise Levels | | | | | |
|---------------------------------------|------------------|--------------------------------|---|-------------|-------------------|
| Rural | Sub-Urban | Residential (Urban) | Urban (Residential & Business) | City | Industrial |
| 25-35 | 30-40 | 35-45 | 40-50 | 45-50 | 50-60 |

Table No.36: Noise Quality Standards

| Sr. No. | Category of Area | Noise level in Leq dB (A) | |
|----------------|-------------------------|----------------------------------|-------------------|
| | | Day Time | Night Time |
| 1) | Industrial Area | 75 | 70 |
| 2) | Commercial Area | 65 | 55 |
| 3) | Residential Area | 55 | 45 |
| 4) | Silence Zone | 50 | 40 |

Source: Notification of MoEF, dated 26-12-1989

Note:

1. Day time is reckoned between 6 a.m – 10 p.m
2. Night time is reckoned between 10 p.m – 6 a.m
3. Silence Zone is defined as areas upto 100 m around premises as hospitals, educational institutions and courts. The silence zones are to be declared by Competent Authority. Use of vehicular horns, loudspeakers and bursting of crackers shall be banned in these Zones.
4. Mixed categories of areas should be declared as one of the four above mentioned categories by the Competent Authority and the Corresponding standards shall apply.

Table No.37: WHO Guidelines for Sound Level

| Specific Environment | Time Base (hours) | Standards limits as per WHO guidelines | |
|--|----------------------|---|---------------------------------|
| | | LAeq (dB) | LAm _{ax} ,fast (dB) |
| Outdoor living area | 16 | 50-55 | - |
| Dwelling , indoors, inside bedrooms | 16 | 30 | - |
| | 8 | 35 | 45 |
| Outside Bedrooms | 8 | 45 | 60 |
| School Classrooms and preschool , indoors | During class | 35 | - |
| Preschool bedrooms,indoors | Sleeping time | 30 | 45 |
| School playground, outdoors | During play | 55 | - |
| Hospital, ward rooms, indoors | 8 | 30 | 40 |
| | 16 | 30 | - |
| Hospital , Treatment rooms , indoors | - | As low as possible | - |
| Industrial Commercial, shopping and traffic areas, indoors and outdoors | 24 | 70 | 110 |
| Ceremonies, festivals and entertainment events | 4 | 100 | 110 |
| Public addresses, indoors and outdoors | 1 | 85 | 110 |
| Music through headphones and earphones | 1 | 85 (under headphones, | 110 |

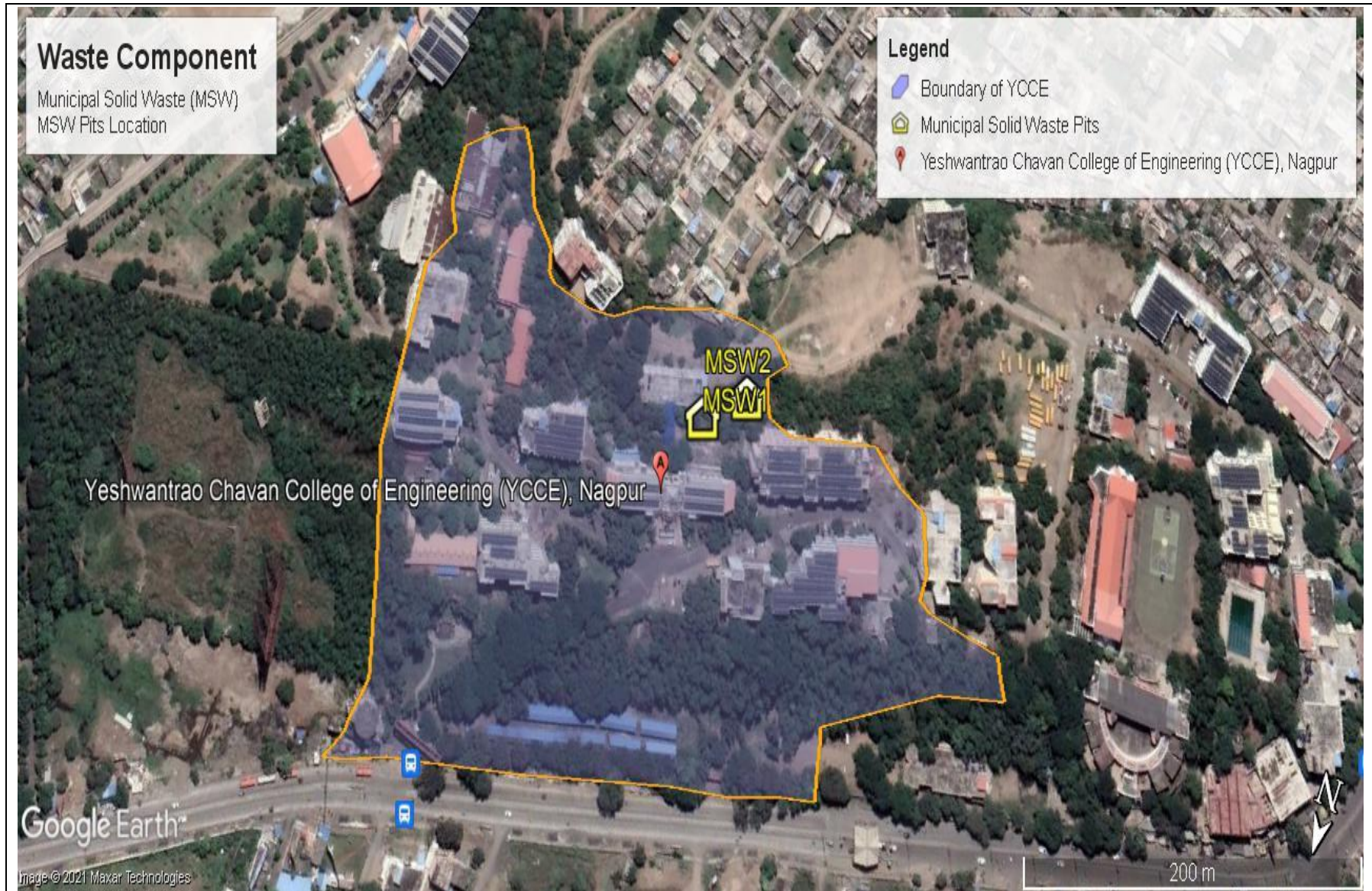
| | | | |
|---|---|---|---|
| | | adapted to free-field valued) | |
| Impulse sounds from toys , fireworks and firearms | - | - | 120-140 (peak sound pressure) not LAmax, fast), measured 100mm from the car) |
| Outdoor in parkland and conversation areas | - | Exiting quite outdoor areas should be preserved and the of intruding noise to natural background sound should be kept low | - |

Source: <http://cpcb.nic.in/who-guidelines-for-noise-quality>

Table No.38: Quantitative Characteristics of Noise Level at YCCE

| Sr. No. | Locations | Noise level (Day Time) | Noise level (Night Time) |
|---------|------------|------------------------|--------------------------|
| 1) | Location 1 | 61 dB | 50 dB |
| 2) | Location 2 | 64 dB | 51 dB |
| 3) | Location 3 | 66 dB | 52 dB |
| 4) | Location 4 | 62 dB | 55 dB |
| 5) | Location 5 | 65 dB | 52 dB |

Solid waste refers to the range of garbage materials arising from animal and human activities that are discarded as unwanted and useless. Solid waste is generated from industrial, residential, and commercial activities in a given area, and may be handled in a variety of ways. As such, landfills are typically classified as sanitary, municipal, construction and demolition, or industrial waste sites. The Municipal Solid Waste data was generated with due consideration to the number of individuals per department and the duration of day they spend at each of the department.



Satellite Imagery No. 12 : Municipal Solid Waste Pit

Table No. 39: Institutional Municipal Solid Waste Generation at YCCE

| Sr. No | Name of Department | Departmental sub-categories | Number of candidate | | | | Teaching Faculty | Non-Teaching Staff | Total no. of Individuals | Solid waste generated per dept (kg)/day |
|--------|--|---|---------------------|---------------------|--------------|-------|------------------|--------------------|--------------------------|---|
| | | | BE Intake | Graduation Students | M.Tech Total | Ph. d | | | | |
| 1. | Administrative Office | | | | | | | 115 | 115 | 16.91 |
| 2. | Library | | | | | | | 16 | 16 | 2.35 |
| 3. | Applied Science and Humanities | | | | | 21 | 37 | 8 | 66 | 9.70 |
| 4. | Computer Technology | M.Tech.Computer Science and Engineering | 120 | 480 | 48 | 8 | 30 | 13 | 579 | 85.11 |
| 5. | Electronics Engineering | M.Tech . Electronics Engineering | 120 | 480 | 67 | 0 | 36 | 17 | 600 | 88.20 |
| 6. | Electronics &Telecommunication Engineering | M.Tech .Communication Engineering | 180 | 720 | 24 | 8 | 33 | 16 | 801 | 117.75 |

| | | | | | | | | | | |
|----|------------------------|------------------------------------|-----|-----|----|----|----|----|-----|---------------|
| 7. | | M.tech .CAD-CAM | | | | | | | | |
| 8. | Electrical Engineering | M. Tech . Integrated Power Systems | 180 | 720 | 18 | 5 | 39 | 14 | 796 | 117.01 |
| 9. | Information Technology | | 60 | 240 | 18 | 9 | 21 | 17 | 305 | 44.84 |
| 10 | Mechanical Engineering | | 180 | 720 | 43 | 10 | 45 | 22 | 840 | 123.48 |
| 11 | Civil Engineering | M.Tech . Environmental Engineering | 180 | 720 | 43 | 5 | 50 | 15 | 833 | 122.45 |
| | | M.Tech .Structural Engineering | | | | | | | | |
| 12 | Total | | | | | | | | | 727.80 |

Henceforth,

Total Waste generated per day = 727.80 kg

Institutional Municipal Solid Waste generated for Session 2016-2017 = 727.80 kg*365 days

= 265,647 kgs

VIII] Waste Generation and Disposal Audit: A) Domestic Wastewater

Wastewater or sewage is the byproduct of many uses of water. There are the household uses such as showering, dishwashing, laundry and, of course, flushing the toilet. The sewer or collection system is designed so that it flows to a centralized treatment location. The collection system is comprised of smaller sewers with a diameter of about four inches.

The YCCE campus has a own Sewage Treatment Plant (STP) with 1,25000 lpd capacity with the regeneration of treated water further subjected to gardening and wahing as well as flushing activities.

The STP has inclusion of unit processes:

- 1) Primary Treatment
- 2) Secondary Treatment and
- 3) Tertiary Treatment



Satellite Imagery No. 13: Sewage Treatment Plant Location

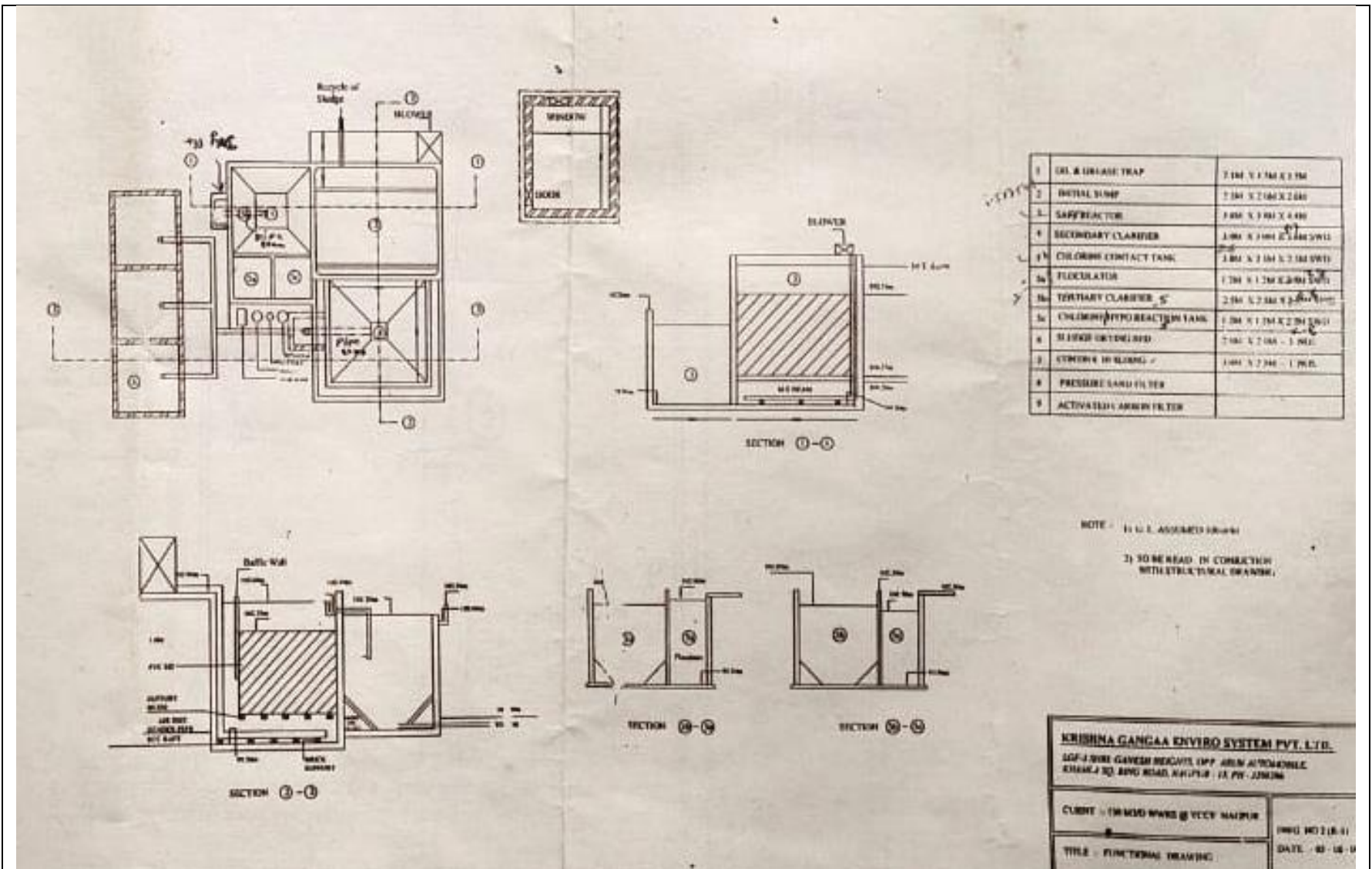


Image No. 2: Sewage Treatment Plant Design and Description

| NOTE | |
|--------------------------|--|
| HDPE 110 MM PIPE | |
| HDPE 90 MM PIPE | |
| HDPE 63 MM (CLEAR WATER) | |
| HDPE 32 MM PIPE | |
| GARDEN SUPPLY CONNETION | |
| SEWAGE LINE | |
| GARBAGE | |
| SEWAGE TREATMENT PLANT | |
| MAN HOLE | |

| INDEX | |
|-------|---|
| A | SEPTIC TANK AT ELECTRONICS BUILDING - SIZE -6.47X3.47X2.45 PUMP -7.50 H.P. - 110 MM PIPE LINE TO NEW SCIENCE BUILDING |
| B | SEPTIC TANK AT YCCE PG & RESEARH BUILDING - SIZE -5.62 X3.37X2.05, PUMP -1.00 H.P. - 90 MM PIPE LINE CONNECTED TO ELECTRONICS BUILDING SEPTIC TANK. |
| C | SEPTIC TANK AT ELECTRICAL BUILDING - SIZE -2.77 X2.00 X2.45, PUMP -1.00 H.P. - 110 MM PIPE LINE CONNECTED TO ELECTRONICS BUILDING SEPTIC TANK. |
| D | SEPTIC TANK BEHIND CANTEN BUILDING - SIZE -3.00 X3.00 X 1.90, PUMP -1.00 H.P. - 110 MM PIPE LINE |
| E | SEPTIC TANK BEHIND CCC BUILDING - SIZE -6.00 X2.24 X 1.80, PUMP -1.00 H.P. - 110 MM PIPE LINE |
| F | SEPTIC TANK AT OLD SCIENCE BUILDING - SIZE -3.77 X2.77 X 2.45, PUMP -NIL.(WATER SUPPLY BY GRAVITY) - 110 MM PIPE LINE! |
| G | SEPTIC TANK AT NEW SCIENCE BUILDING - SIZE -4.80 X2.70 X 2.20, PUMP -NIL.(WATER SUPPLY BY GRAVITY) - 110 MM PIPE LINE! |
| J | SEPTIC TANK AT SDMP WING D LIBRARY BUILDING - SIZE - PUMP - 2 NOS. 1 HP. EACH - (ONE FOR GARDEN SUPPLY & ONE FOR SDMP BLDG.) 32 MM PIPE LINE |
| L | SEPTIC TANK AT SDMP WORKSHOP BUILDING - SIZE - 6.00X3.00X 2.79 |
| M | SEPTIC TANK AT OUTSIDE THE COMPOUND WALL - SIZE - |
| N | SEPTIC TANK AT GYMNASIUM BUILDING - SIZE - |

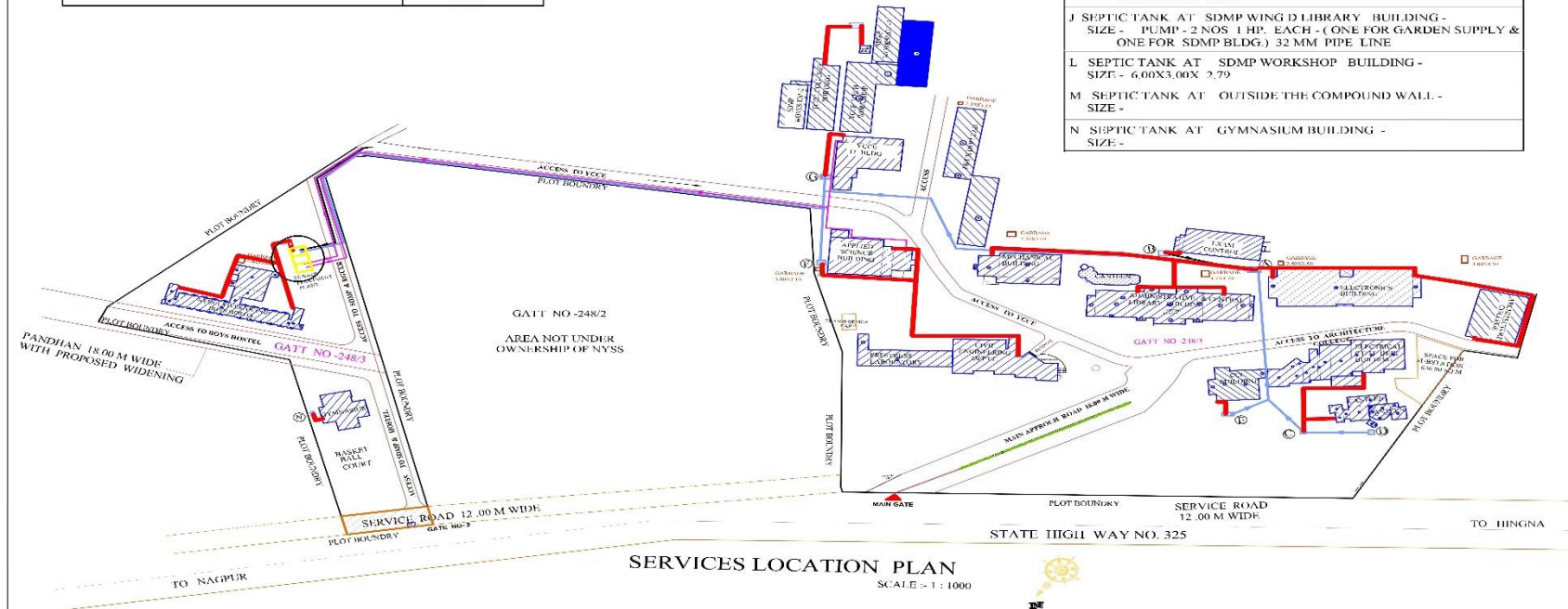


Image No. 3: Sewer Line Drainage Map

Table No. 40: Sewage Standards

| MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE | | | | |
|---|------------------------|---|---|------------------------------------|
| New Delhi, the 13th October, 2017 | | | | |
| Sr. No. | | Parameters | Standards | |
| | | | Effluent discharge standards (applicable to all mode of disposal) | |
| | | | Location | Concentration not to exceed |
| | | | (a) | (b) |
| 1) | Sewage Treatment Plant | pH | Anywhere in the country | 6.5-9.0 |
| 2) | | Bio-Chemical Oxygen Demand (BOD) | Metro Cities*, all State Capitals except in the State of Arunachal Pradesh, Assam, Manipur, Meghalaya Mizoram, Nagaland, Tripura Sikkim, Himachal Pradesh, Uttarakhand, Jammu & Kashmir, and Union territory of Andaman and Nicobar Islands, Dadar and Nagar Haveli Daman and Diu and Lakshadweep | 20-30 |
| 3) | | Total Suspended Solids (TSS) | Same as above [(2)-BOD] | 50-100 |
| 4) | | Fecal Coliform (FC) (Most Probable Number per 100ml, MPN/100ml) | Anywhere in the country | <1000 |

Table No. 41: Qualitative and Quantitative Characteristics of Sewage at YCCE

| Sr. No. | Parameters | Unit | Result | | Limit | Method Reference |
|---------|---------------------------------|------|-----------|------------|---------|---|
| | | | STP Inlet | STP Outlet | | |
| 1 | pH | – | 7.3 | 7.5 | – | APHA 23 rd Ed. 2017, 4500-H ⁺ - B, 4-95 |
| 2 | Total Dissolve Solids | mg/L | 328 | 297 | – | IS 3025 (Part 16): 1984 Reaffirmed 2006, Ed.2.1 (1999-12) |
| 3 | Total Suspended Solids | mg/L | 47 | 32 | 100 Max | APHA 23 rd Ed. 2017, 2500-D, 2-70 |
| 4 | Chlorides (as Cl ⁻) | mg/L | 44 | 30 | – | APHA 23 rd Ed. 2017, 4500-Cl- B, 4-75 |
| 5 | Sulphates (as SO ₄) | mg/L | 49.4 | 52.8 | – | APHA 23 rd Ed. 2017, 4500-SO ₄ -E,4-199 |
| 6 | Dissolved Oxygen | mg/L | 4.9 | 5.6 | – | APHA 23 rd Ed. 2017, 4500-O,B,4-144&C,4-146 |
| 7 | Bio-chemical Oxygen Demand | mg/L | 11..3 | 4.2 | 100 Max | IS 3025 (Part 44): 1993, Reaffirmed 2009 |
| 8 | Chemical Oxygen demand | mg/L | 38 | 19 | – | APHA 23 rd Ed. 2017, 5220-B,5-18 |



Photograph No. : Sewage Treatment Plant

VIII] Waste Generation and Disposal Audit: B) Biogas Technology Audit

The college campus has two canteens, with their own individual mess, where daily generated kitchen waste is subjected for Biogas generation. For harnessing the maximum energy pre-digester tank in which any type of kitchen waste, manure etc. is fermented, has been installed. In order to maintain the temperature of biogas plant the solar water heater fully home made using copper coil and glass has also been used. Biodigester consist a plastic tank of capacity 1000 liters. The retention time period for production of gas is about 30-45 days depending upon season, temperature and many other environmental factors.



Digester tank



Biogas Plant

Use of food crusher helps in reducing the solid contents in the feedstock, which makes the anaerobic digestion process faster, resulting in increase in output of gas. In Biogas model by considering the size and capacity of the digester tank by 7 Kg of feedstock daily. The feedstock is fed daily and in 1:2 proportion with water and feedstock. Since bacteria in the digester have very limited reach to their food it is necessary that slurry is properly mixed and bacteria get their proper supply. The biogas generation process is highly depends upon the C/N ratio of the feedstock. Higher the C/N ratio higher will be the production. The temperature affects in large extent to the gas production. It is found that the production of gas is faster in summer days as compared to winter days.

Green Initiatives/ Activities in Campus

- ✓ Mass Plantation drive
- ✓ Plastic collection day in campus
- ✓ Interactive sessions for students to explore and channelize the young for environmental conservation
- ✓ Environment friendly and safe disposal of E-waste
- ✓ Conversion of Canteen waste to energy used in laboratory
- ✓ Sustainable construction of buildings
- ✓ Display board of conservation and prevention of resources within the campus for awareness
- ✓ Expert talks on Environmental Conservation practices
- ✓ Surface water run-off recharge to the well
- ✓ Solar Energy conversion



Suggestions

- 1) Plastic waste management needs to be practiced efficiently.
- 2) Regular check should be done at STP in regard of inlet and outlet wastewater characteristic parameters to maintain the work efficiency of STP.
- 3) Implementation of proper municipal solid waste management plan is essential.
- 4) Ecosystem of the college should be managed properly. Snails spreaded all over the garden, great concern for biodiversity.
- 5) Each of the trees and plants should be numbered and their scientific classification in regards of common name, genus and scientific name should be displayed.
- 6) Fallen twigs and leaves can be used for bio-composting and the manure can be produced by integrating students in these practices.
- 7) A piece of land could be dedicated for organic farming and the students could be motivate to take responsibility to maintain the same during their physical activity hours.