To
The Head of Institution/Principal

Sub:-MGNCRE-MoE-GOI – One District One Green Champion Award – Swachhta Action Plan-Exemplary Performance Awards - Reg.

Dear Professor,
Namaskar! Congratulations from Mahatma Gandhi National Council of Rural Education(MGNCRE)!

The MGNCRE in the Ministry of Education in Government of India recognizes you as one of the Exemplary Performers in Swachhta Action Plan (SAP) Green Campus Initiative. Your contribution to the field of Swachhta aspects is well appreciated and we congratulate you. We recognise you as “One District One Green Champion”.
In this Context, you are requested to send the details of the official bank account of your institution/college. A reward amount of Rs.5000/- (Five thousand Rupees only) and a Certificate from MGNCRE,Ministry of Education will reach through Collector/District Magistrate.
In this regard, kindly submit the Bank account details and relevant information through following link:

https://forms.gle/NRKLLcP4mhLWVptQ7

Thank you.
--
Best Wishes
Team MGNCRE

तारीख / Date 09.08.2021
ज्ञापनसंख्या/ Memo no: 212

सत्यमेव जयते

भारतसरकार /Government of India
महात्मा गांधी राष्ट्रीय ग्रामीण शिक्षा परिषद / Mahatma Gandhi National Council of Rural Education
उच्चशिक्षाविभाग/Department of Higher Education
शिक्षामंत्रालय / Ministry of Education

Where there is Rural Wellbeing there is Universal Prosperity

District Green Champion Certificate

This is to certify that **St. Joseph's College (Autonomous)** is hereby recognized as **District Green Champion** of **Kohima** District for the Academic Year 2020-21. The Institution has successfully set up the Swachhta Action Plan Committee, adopted and implemented the best practices in the areas of Sanitation, Hygiene, Waste Management, Water Management, Energy Management and Greenery Management.

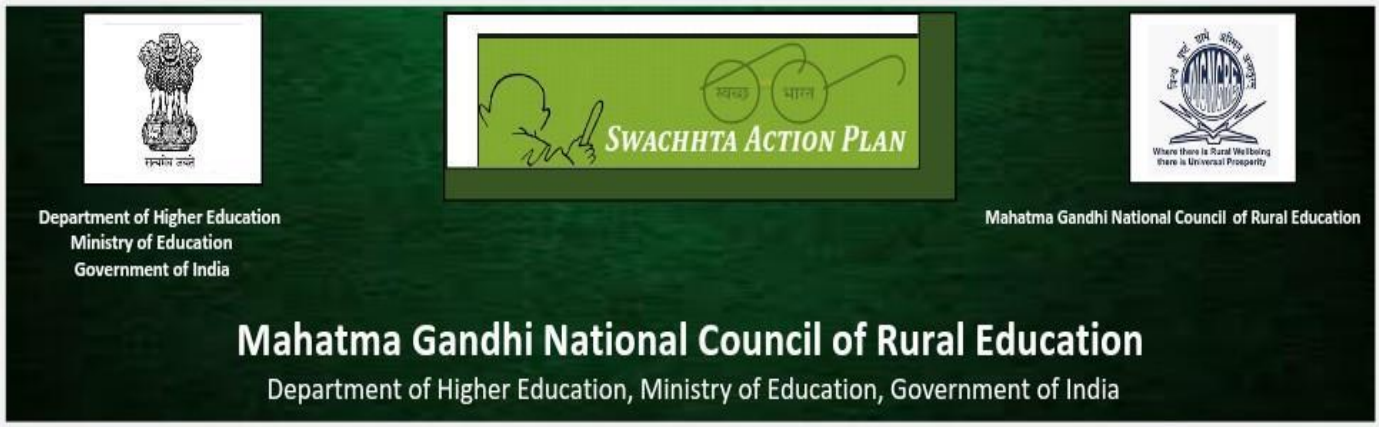
This certificate is given in the presence of **Shri Gregory Thejawelie, NCS,** Deputy Commissioner Kohima District, Nagaland.

JULY 2021

Dr W G Prasanna Kumar
Chairman
MGNCRE, Ministry of Education
Government of India

Mahatma Gandhi National Council of Rural Education Announces the Recipients of "One District One Green Champion" Awards! Swachhta Action Plan 2020-2021

CONGRATULATIONS!!



SL.NO	STATE/UT	DISTRICT	HIGHER EDUCATION INSTITUITION
1.	ANDAMAN & NICOBAR ISLANDS	SOUTH ANDAMAN	ANDAMAN COLLEGE (ANCOL)
2.	ANDHRA PRADESH	ANANTAPUR	SRI SATHYA SAI INSTITUTE OF HIGHER LEARNING
3.	ANDHRA PRADESH	CHITTOOR	APOLLO INSTITUTE OF MEDICAL SCIENCES AND RESEARCH
4.	ANDHRA PRADESH	EAST GODAVARI	P.R. GOVERNMENT COLLEGE (AUTONOMOUS), KAKINADA
5.	ANDHRA PRADESH	GUNTUR	KONERU LAKSHMAIAH EDUCATION

			A.E.KALSEKAR COLLEGE OF COMMERCE & MANAGEMENT
184.	MANIPUR	BISHNUPUR	PANDIT DEEN DAYAL UPADHYAY INSTITUTE OF AGRICULTURAL SCIENCES
185.	MANIPUR	IMPHAL WEST	REGIONAL INSTITUTE OF MEDICAL SCIENCES
186.	MANIPUR	SENAPATI	DON BOSCO COLLEGE (AUTONOMOUS) MARAM
187.	MANIPUR	THOUBAL DISTRICT	INSTITUTE OF RURAL EDUCATION -IRE
188.	MEGHALAYA	EAST KHASI HILLS	ST. EDMUND'S COLLEGE
189.	MEGHALAYA	WEST GARO HILLS	DON BOSCO COLLEGE, TURA
190.	MP	SHAJAPUR	SHUBHAM ACADEMY
191.	NAGALAND	DIMAPUR	UNITY COLLEGE
192.	NAGALAND	PEREN	ST. XAVIER COLLEGE
193.	NAGALAND	KOHIMA	ST. JOSEPH'S COLLEGE (AUTONOMOUS), JAKHAMA
194.	ODISHA	BARGARH	IMPERIAL COLLEGE, BARGARH
195.	ODISHA	GAJAPATI	CENTURION UNIVERSITY OF TECHNOLOGY AND MANAGEMENT, PARLAKHEMUNDI CAMPUS
196.	ODISHA	GANJAM	ROLAND INSTITUTE OF TECHNOLOGY
197.	ODISHA	JAJPUR	SHRI DADHIBAMAN JEW SANSKRIT

GREEN AUDIT REPORT

Of

ST. JOSEPH'S COLLEGE (AUTONOMOUS), JAKHAMA

Kohima, Nagaland – 797001

INDIA

NAGALAND POLLUTION CONTROL BOARD

GREEN AUDIT

Certificate

NPCB/GAR/2023/03 **Dated: 22/09/2023**

This is to certify that

St. Joseph's College (Autonomous)
Jakhama, Kohima, Nagaland

has successfully undergone a Green Audit during 2022-2023 under the Supervision of Nagaland Pollution Control Board.

The college has submitted necessary data and credentials for scrutiny. The activities and measures carried out by the college have been verified. The efforts taken by the college towards conserving environment and sustainability is appreciated and commendable.

(K. HUKATO CHISHI, IFS)
Member Secretary
Member Secretary
Nagaland Pollution Control Board
Nagaland : Dimapur

MEMBERS OF GREEN AUDIT TEAM

INTERNAL COMMITTEE

1. Dr. Fr. George Keduolhou Angami, Principal, SJC (A)
2. Rev. Fr. Peter Solo, Dean of Science, SJC (A)
3. Dr. Hormila G Zingkhai, IQAC Coordinator, SJC (A)
4. Department of Botany, SJC (A)
5. Department of Chemistry, SJC (A)
6. Department of Physics, SJC (A)
7. Department of Mathematics, SJC (A)
8. Department of Zoology, SJC (A)

EXTERNAL EXPERT COMMITTEE

Nagaland Pollution Control Board
Government of Nagaland
Dimapur, Nagaland

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ACKNOWLEDGEMENT

St. Joseph's College (Autonomous), Jakhama, acknowledges the Green Audit Report Team for meticulously compiling the report. The college appreciates the cooperation received from the management, faculties, non-teaching staff and students during the entire process.

At the outset, we acknowledge the efforts of the college Internal Quality Assurance Cell (IQAC) for striving to achieve and maintain an environment- habitable and pristine in its state.

We also acknowledge the help rendered by the Department of Chemistry for the analysis of the water samples collected from in and around the campus. We thank the Department of Zoology for the analysis of the soil samples and for providing data of the fauna present in the college campus. The same goes to the Department of Botany for providing and analyzing the biodiversity data of the flora available in the college campus. Special thanks to the Department of Mathematics and Physics for preparing the Energy Audit Report of the whole campus.

The college is ever grateful to Nagaland GIS & Remote Sensing Centre, Government of Nagaland, for furnishing the aerial map of the college along with the topography and ecological cover of the surroundings areas. Mention is made here of our indebtedness to the External Expert Committee from the Nagaland Pollution Control Board, Government of Nagaland, for the expert opinions and recommendations, thereby authenticating this report.

DISCLAIMER

Green Audit Team has prepared this report based on the primary data collected from different locations within the college campus. All considerations have been taken into account to analyse the samples scientifically without any bias. Details contained in this report have been compiled in good faith based on the information gathered.

EXECUTIVE SUMMARY

One of the major concerns of the world today is of the deteriorating environment and its adverse impact on planet earth, particularly the human race. It occupies the main headlines of every news and is the subject of debate and discussion in every forum at the world's arena. The reality which hit the world fast and thick at the beginning of the 21st century is that of the climate change and the rising earth's temperature. This phenomenon came about all of a sudden because the world at large did not heed to the cautious words of the environmentalists and the ecologists. No corner of this earth is now spared by the onslaught of this climate change. Every nation is faced with the surmounting problem due to the havoc caused by nature. This altogether have upset the social, economic and political scenario, thereby compelling the people and the governments to reflect and restructure their policies and principles as it requires a collective effort of the nations to tackle this pressing issue.

Though, one cannot turn back the clock and revert back to the original state, yet efforts can be made individually and collectively to restore the ailing planet. Apart from homes and government offices, one of the best places to address this issue is the educational institutes.

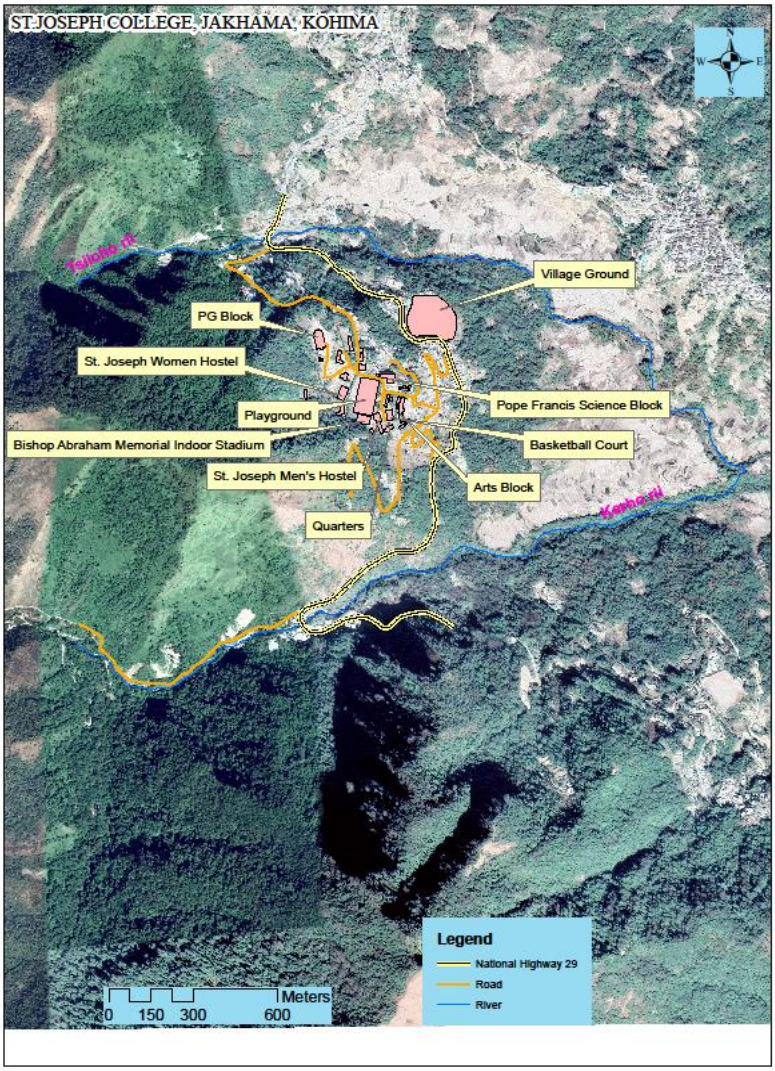
Educational institutes whether small or big, consist of a milieu where students, scholars, faculties and academicians get to interact and exchange ideas to bring about positive changes. The studies and findings of educational institute have always influenced the policy makers and aided in the decision making of any government, paving a way forward for a sustainable development and a secured future. In this regard, St. Joseph's College (Autonomous), Jakhama is no exception.

Adhering to the norms and standards set by St. Joseph's College (Autonomous) and in tune with the plans and policies formulated by the institution pertaining to environment and related issues, the Green Audit Report takes into consideration those initiatives meant for maintaining a balance between the anthropogenic activities and nature, and the overall

up-kept of the environment. This calls for the involvement and the participation of all the stakeholders in and around the campus. It has always been the policy of the college to disseminate information and create awareness with regard to its environment. The college since its inception in 1985 have maintained cleanliness, tranquillity and co-existence with nature and the community around it, a legacy that still continues.

The Green Audit Report of St. Joseph's College (Autonomous) is an effort to estimate both the positive and adverse impact on the environment due to the presence of the educational institution. It also provides a way forward for fulfilling and achieving a more positive approach towards maintaining a balance between the need of the institution and the surrounding environment. Though considered as a small initiative made by the college, nevertheless the small step taken is a giant leap towards mankind's effort to protect Mother Nature.

Photo: Panoramic View of St. Joseph's College (Autonomous), Jakhama



***Source*: GIS and Remote Sensing Office, Government of Nagaland, 2023**

ENVIRONMENTAL SETTINGS OF THE COLLEGE

OVERVIEW OF THE COLLEGE

St. Joseph's College (Autonomous), Jakhama, Nagaland is a Catholic institution of higher learning established and managed by the Diocese of Kohima, Nagaland. It is the first college established by the Catholic Church in Nagaland. It aims at imparting quality higher education that is based on the Christian vision of life. Catholic education stresses the formation of the whole person by recognising and developing the vast potentialities latent in the student in a balanced manner, taking into account the student's socio-cultural context.

The college admits students from all social milieus, thus at present, it has a total enrolment of around 4058 students hailing from different communities from North East and across the rest of the country. The college offers undergraduate programmes in Bachelor of Arts with Honours in Economics, Education, English, History, Political Science and Sociology, Bachelor of Commerce, Bachelor of Business Administration and Bachelor of Science with honours in Botany, Chemistry, Mathematics, Physics and Zoology. The college also offers Post Graduate Programmes in Master of Arts in Economics, English, History, Political Science and Sociology, and Master of Science in Botany.

The college is included in the List of Colleges under Section 2 (f) & 12 (B) of the UGC Act, 1956, and has been Re-accredited by the National Assessment and Accreditation Council (NAAC) with A Grade (CGPA 3.12). The college was conferred autonomous status in the year 2018. To keep pace with the new educational policy of the country, the college has introduced the Curriculum and Framework of NEP 2020 from the academic year 2023-2024.

VISION AND MISSION OF THE COLLEGE

The vision of St. Joseph's College is to impart quality education at the higher level in a Christian atmosphere to deserving students, especially those belonging to the Catholic, Christian communities and those belonging to Scheduled Tribes, Scheduled Castes and OBCs and thus help in the diffusion of knowledge and advancement of educational activities in all its branches

including vocational, technical, professional, cultural, social and moral education. The mission of the college is to form men and women who are intellectually alert, morally upright, religiously oriented, socially conscious, culturally distinct and nationally integrated. Thus, the college aims at formation of the whole person by recognising and developing the vast potentialities latent in the student in a balanced manner, taking into account the student's socio-cultural context.

OBJECTIVE OF THE COLLEGE

1. To enable students to become men and women of character with sound moral principles.
2. To inculcate in the students life-long desire for learning.
3. To create in the students harmonious blend of faith and culture.
4. To strive towards excellence in every field.
5. To educate the young minds on selfless service to the society.
6. To sensitise the students on the current socio-economic, political and cultural issues.
7. To provide quality education which is socially relevant and useful for life.

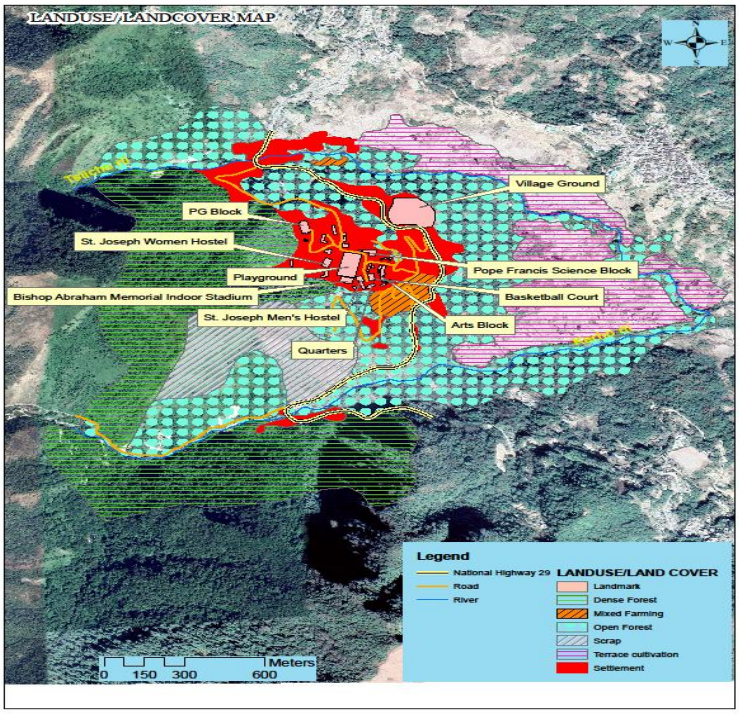
ENVIRONMENT SETTING

The college is situated at the foot of the mountain *Thubo*, also called *Cheyiezho*, just above the National Highway 29. Located at 25°06' N and 27°04' N latitude (North of Equator) and 93°20' E and 95°15' E longitude (East of GMT) in a sprawling campus South-West of Jakhama village, about 18kms from Kohima, the state capital of Nagaland, the college is spread over 26.9 acres which includes the college buildings, a multi-disciplinary playing ground, basketball court and a mini zoo. The College infrastructure includes three academic buildings- Arts Block, St. Pope Francis Science Building, Post-Graduate and Research Block Building, five hostels- SJC Men's Hostel, Adoration Women's Hostel, St. Joseph's Girls Hostel, Ave Maria Women's Hostel and CMC Women's Hostel, Auditorium, Bishop Abraham Memorial Indoor Stadium, Staff Quarters, Father's Residence and the college chapel. The hostels and residences are provided with sustainable technological equipments such as solar panels, rain harvesting system and solar lamps and solar bulbs are fixed within the whole campus area for lighting the campus.

Furthermore, the college maintains its own green belts such as lawns, gardens, Herbal Plant Heritage cum Botanical garden and orchards within its campus.

Photo: Environment setting of St. Joseph's College (Autonomous) Campus

MAP OF LANDUSE/ ENVIRONMENT SETTING OF ST. JOSEPH'S COLLEGE (AUTONOMOUS)



Source: **GIS and Remote Sensing Office, Government of Nagaland, 2023**

FLORA AND FAUNA ENDEMIC TO THE COLLEGE

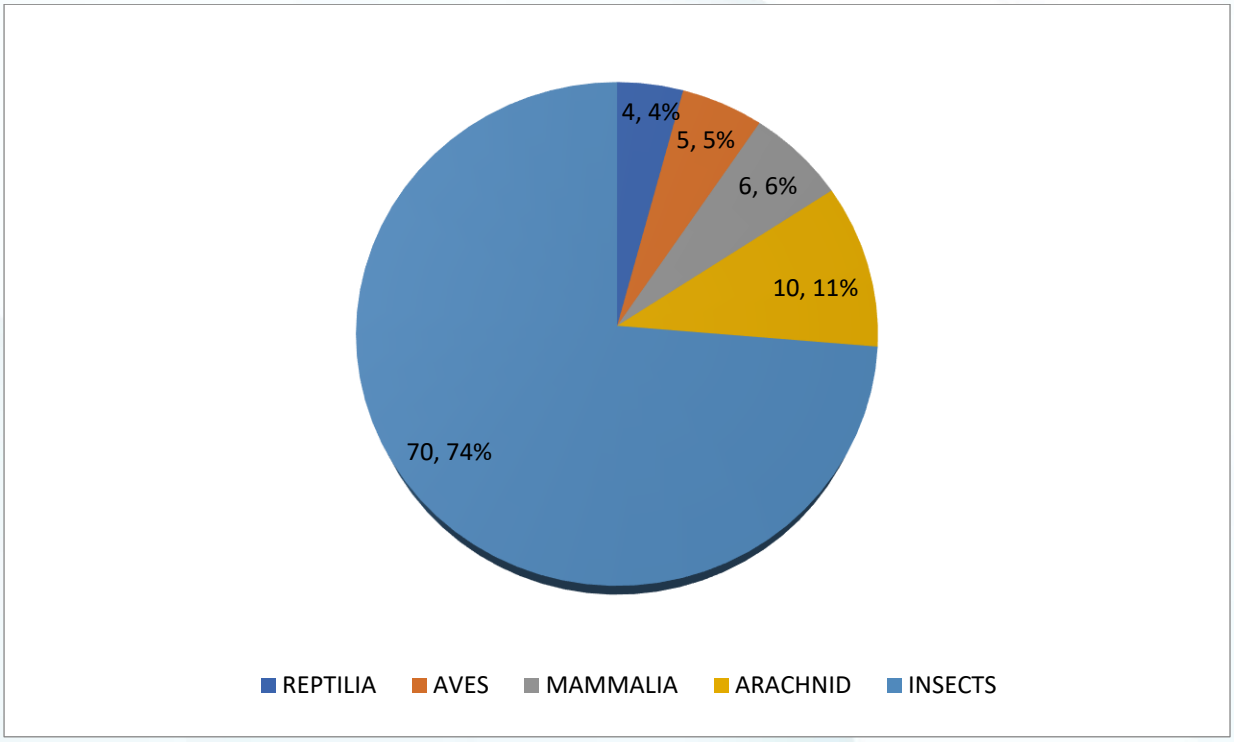
The college is surrounded by luscious greeneries adorned with pine trees, herbs and shrubs with magnificent view of beautiful mountains. The most common plants belonging to the family *Asteraceae* was observed with approximately 30 species being identified. However, the number of species in *Asteraceae* is rivaled only by the species *Orchidaceae*, but the quantity of extant species in each family is unknown. The members of *Asteraceae* found are generally easy to distinguish from other plants because of their unique inflorescence and other shared characteristics, such as join anthers of the stamens.

There are 76 Numbers of families with approximately 176 species identified in St. Joseph's College Autonomous, Jakhama. These are Rutaceae, Poaceae, Geraniaceae, Apocynaceae, Polygonaceae, Orchidaceae, Amaranthaceae, Eupatorieae, Asteraceae, Phyllanthaceae, Papaveraceae, Ericaceae, Malvaceae, Athyriaceae, Tropaeolaceae, Euphorbiaceae, Lamiaceae, Verbenaceae, Fagaceae, Fabaceae, Cannabaceae, Passifloraceae, Primulaceae, moraceae, Arecaceae, Asphodelaceae, Brassicaceae, Woodsiaceae, Cannaceae, Oleaceae, Apiaceae, Asperaceae, Commelinaceae, Compositae, Asparagaceae, Hypoxidaceae, Plantaginaceae, Proteaceae, Araliaceae, Solanaceae, Caryophyllaceae, Dennstaedtiaceae, Laurasia, Aspleniaceae, Cystoptesidaceae, Onagraceae, Scrophulariaceae, Ranunculaceae, Smilaceae, Cupressaceae, Liliaceae, Polypodiaceae, Betulaceae, Cyperaceae, Myrtaceae, Caryophyllaceae, Musaceae, Lindsaeaceae, Dryopteridaceae, Meliaceae, Dracaenaceae, Zamiaceae, Rubiaceae, Lythraceae, Nyctaginaceae, Urticaceae, Leguminoseae, Selaginellaceae, Acanthaceae, Aistroemeriaceae, Theaceae, Rosaceae, Taxaceae, Pandaceae, Cucurbitaceae. 51 families were found to have the least number of species out of the 79 families in Jakhama village. Some of the examples are Papaveraceae, Cyperaceae, Asperaceae, etc.

The college ecosystem is also endowed with abundance of medicinal plants, such as *Catharanthus roseus, Mimosa pudica, Polygonum moll, Allium sativum, Mentha spicata, Psidium guayava, Fagopyrum esculentum, Curculigo capitulat,Blumea spp., Eryngium foetidu,Ageratum conyzoide,Solanum nigrum,Centella asiatica,Solanum indicum,Houttuynia cordata,Equisetum arvense,Plantago major etc.*

The campus and its surrounding is rich in faunal diversity which includes amphibians, reptiles, birds, mammals mostly rodents, spiders and other insects. However, due to the high fenced walls around the campus, larger species of mammals can hardly be seen though the forest around the campus is abound with varied species of wild life. The college is maintaining a miniature enclosure kept as mini zoo on an experimental basis.

Pie-chart showing % of different groups of animals:



ENVIRONMENTAL MANAGEMENT PLANS AND POLICIES OF THE COLLEGE

St. Joseph's College (Autonomous) Jakhama, is situated midway between Kohima, the capital of Nagaland and the bordering state Manipur. A less noticeable feature of the college and its surrounding area is that, it experiences most of the temperamental weather phenomenon not witnessed in the immediate vicinities. Being situated in an ecologically and topographically fragile environment, all the infrastructural development plans are executed keeping in mind the slope gradient, surface run off and to mitigate the impact of human activity on the environment.

It has always been the policy of the college to disseminate information and create awareness with regard to the surrounding environment especially of the campus through the Green Initiative of the college such as –

1. Promulgating Environmental consciousness by introducing individual courses such as Environmental Studies (EVS), Economics of Agriculture, Environmental Sociology (both UG and PG), Green Chemistry etc., as part of the curriculum.
2. Inculcating the students with a sense of environmental responsibility through active involvements by enrolling in NSS, NCC, Eco Club and E-waste Management clubs introduced in the college.
3. Conducting of Environmental Awareness Campaigns regularly.
4. Carrying out environment based activities like mass social works, tree plantations, maintenance of Botanical Garden cum Herbal Heritage, maintenance of Mini Zoo.
5. Introduction of Eco-friendly products like paper pencil, plantable badge and paper pen by the Department of Sociology.
6. Diligently carrying day to day waste management, besides laboratory waste are disposed securely and safely.
7. The college also takes keen interest in creating awareness for proper disposal of E-waste.

8. The College was recognised as the District Green Champion of Kohima district for the Academic Year 2020-2021, under Mahatma Gandhi National Council of Rural Education "One District One Green Champion"

Thus, the college community including the management, the faculty, Non-teaching staff and more significantly the students are committed in pursuing various activities for a sustainable development with efficient resource utilisation. This is further achieved through the following efforts:

1. Sensitising the college community on the proper management of water
2. Maintaining and utilising the 'Rain Water Harvesting facilities available in the campus.
3. Maximising the use of ICT (information and Communications Technology) and minimizing the use of paper ushering towards a 'Paperless Office'.
4. Encouraging vermi-composting of biodegradable waste in the campus for use as manure and other purposes.
5. Protecting and nurturing the Flora and Fauna in the campus by identifying and preserving them.
6. Moving towards clean and renewable energy source like solar, wind and bio-fuel etc., in future.

ESSENCE OF THE GREEN AUDIT REPORT

The Green Audit Report (2022-2023) of the St. Joseph's College (Autonomous) is compiled and furnished for the record and future references. This report is meticulously prepared in a systematic and scientific manner with the sincere and keen efforts of the college community and all the stake-holders having a common goal – "to preserve and protect the pristine environment in and around the college.

This Report will serve as an annual document with respect to the policies and progress made by the college to protect and preserve the healthy yet fragile environment in the college premises and is done by carrying out various tasks viz., water analysis, soil analysis, waste management and analysis of energy consumption with a view to understand the current environmental condition of the college campus and to device better method and formulate further measures for a better and greener environment.

GOALS AND OBJECTIVES OF GREEN AUDIT

The purpose of the audit is to identify, quantify, describe and prioritize a definite guideline of the college for a sustainable and renewable environment in compliance with the applicable regulations,policies and standards. Thus, the goals and main objectives of carrying out Green Audit are:

GOALS OF GREEN AUDIT REPORT

- To preserve and protect the flora and fauna of the fragile ecosystem in and around the college, thereby protecting the environment without destroying it.
- To enable certain scientific procedures for the efficient disposal of waste and its management
- To maintain a balance between nature and human activity
- To save energy by utilising it efficiently

- ❖ Adopting scientific method of disposing biological and chemical wastes produced in the laboratories
- ❖ To monitor the daily weather phenomenon in the campus and thereby ascertain the climate change.
- ❖ To build a sustainable future in harmony with nature.

OBJECTIVES OF GREEN AUDIT

- ❖ To examine the method adopted by the college for energy consumption and proper utilisation of natural resources.
- ❖ To examine the scientific methods of waste management both biodegradable and non-biodegradable.
- ❖ To examine the types and quality of the soil besides assessing the quality of the water.
- ❖ To study the flora and fauna in and around the college, thereby advocating approaches to conserve it.
- ❖ To generate a database for a future sustainable management of the environment.

METHODOLOGY

In order to perform the task of compiling the Green Audit Report, the methodology includes and employed different tools such as laboratory experiments, physical inspection of the college infrastructure and surrounding environment, observation and review of the documentation, interviewing key persons, data analysis, calculations and recommendations relating subjects of specialization. The details below are the assessments carried out by adapting the given methodology:

S. No.	Area of Assessment	Methodology
1	Soil assessment	Experimental verification in the Laboratory
2	Water assessment	Experimental verification in in the Laboratory
3	Assessment of Energy Consumptions	Physical interviews, verifications, and data collection in all the campus buildings
4	Waste Management	Spot verification
5	Water Management	Spot verification
6	Flora diversity	Spot verification, data collection and literature survey
7	Fauna diversity	Spot verification, data collection and literature survey

ANALYSIS REPORT

Assessment of Soil

Soil samples were collected from within the college campus from four different sites viz- Sample I (Arts Block), Sample II (Science Block), Sample III (PG Block) and Sample IV (Above Football Ground).

The parameters for the analysis are as follows:

1. Moisture content
2. pH
3. Electrical conductivity
4. TOC
5. Phosphate
6. Water Holding Capacity
7. Sulphur
8. Potassium
9. Chloride

The analyses for the following were done as per the standard procedure. The procedures followed and results tabulated are presented as follows:

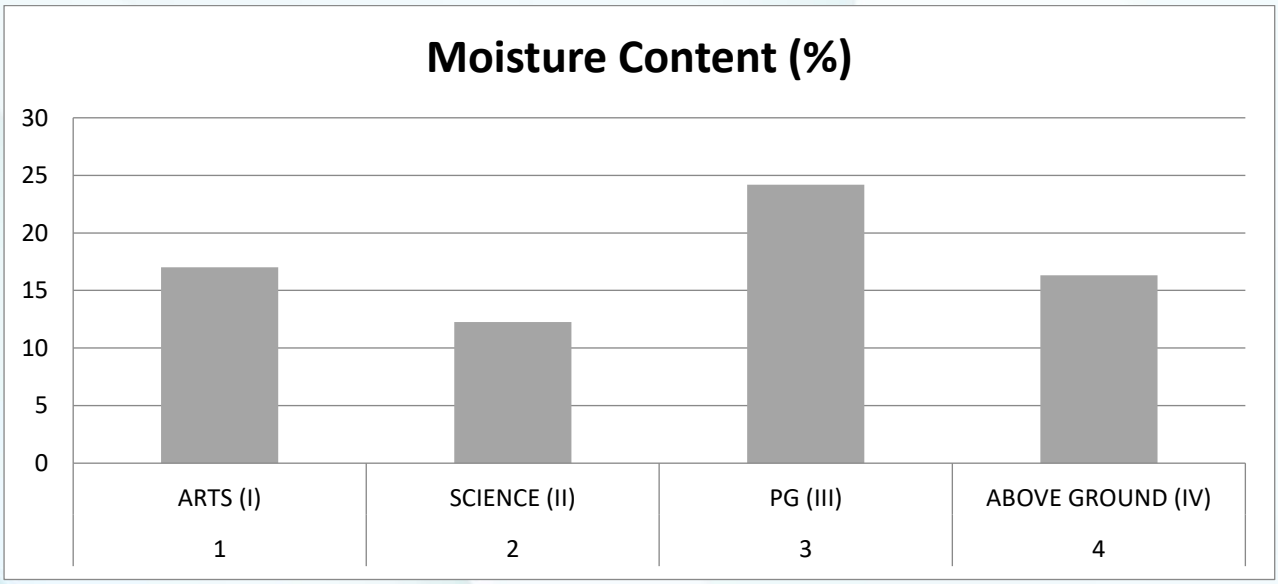
Methods and procedure used for the assessment of Soil

	Analysis	Procedures
1	Moisture content	A certain amount of soil is placed in a container that is heated to 105 °C and dried until all moisture is evaporated. The resulting difference in mass represents the water that has evaporated.
2	pH	The pH is measured using a pH sensitive electrode system. Values on the pH scale are broken down to distinguish the relative acidity or alkalinity
3	Electrical conductivity	The EC is measured using an EC meter. The meter is equipped with a probe that is inserted into the soil extract, and the reading is displayed on a digital screen.
4	TOC	The determination of soil organic carbon is based on the Walkley-Black oxidation method. Oxidisable matter in the soil is oxidized by 1N K2Cr2O7 solution. The reaction is assisted by the heat generated when two volumes of H2SO4 are mixed with one volume of the dichromate. The remaining dichromate is titrated with ferrous sulphate. The titre is inversely related to the amount of C present in the soil sample.
5	Phosphate	The amount of phosphate present is determined by comparison of the blue colour with known standards of phosphate, subjected to the same reaction with molybdate reagent. From this information, the concentration of phosphate in the soil can be calculated.

6	Water Holding Capacity	The maximum amount of water retained by soil per unit of its dry weight after the gravitational flow has ceased is called water holding capacity or field capacity of the soil. Take 100 gm dried sample soil. Pour 100 ml of water in each funnel. Record the volume of filtered out water in the measuring cylinder when the dripping of water stops from the funnel.
7	Sulphur	Take 5 g of air dried and sieved soil and added 50 ml of distilled water to make a uniform suspension. The above samples absorbance was measured at λmax of 420 nm using distilled water as blank. The calibration curve was drawn using the standard sulphate solutions of different strengths and recorded the absorbance for each.
8	Potassium	Flame photometer quantifies the concentration of Potassium content in the samples. The basic concept of working of flame spectrometer is that, a flame through its heat can raise the atoms from a lower energy state to a higher energy state and when it comes back to its ground state, there is emission in the form of radiations. And determination of these radiations is by flame photometer is proportional to the concentration of ion concentration in the sample.
9	Chloride	Titration method: This method uses a back titration with potassium thiocyanate to determine the concentration of chloride ions in the soil sample.

1. Moisture content

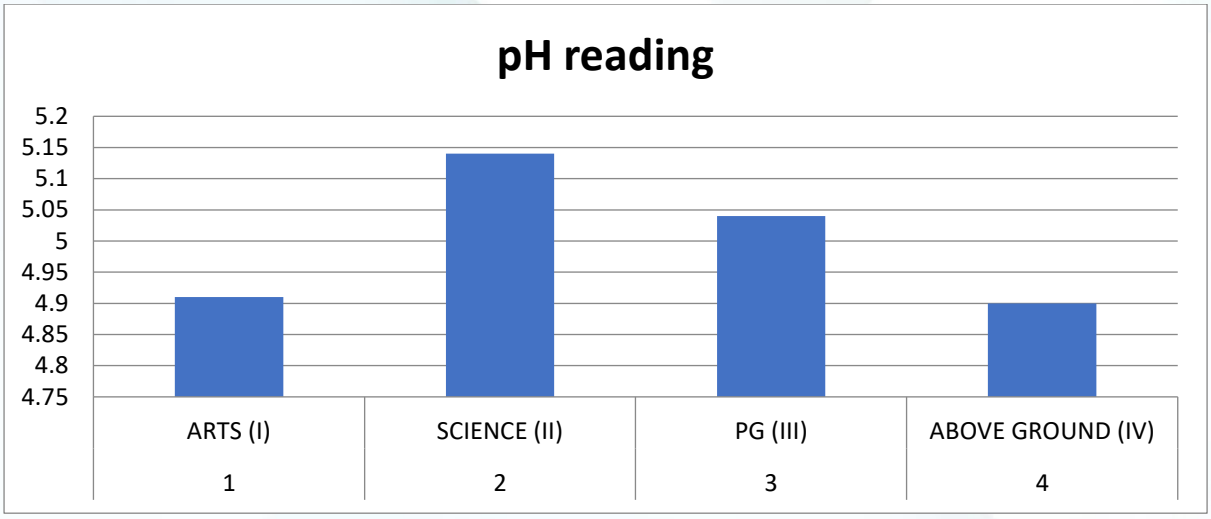
Sl. No	Soil Sample/Location	Moisture Content (%)	Remarks
1.	ARTS (I)	17.01	Optimum moisture content
2.	SCIENCE (II)	12.25	"
3.	PG (III)	24.18	"
4.	ABOVE GROUND (IV)	16.32	"



2. Ph

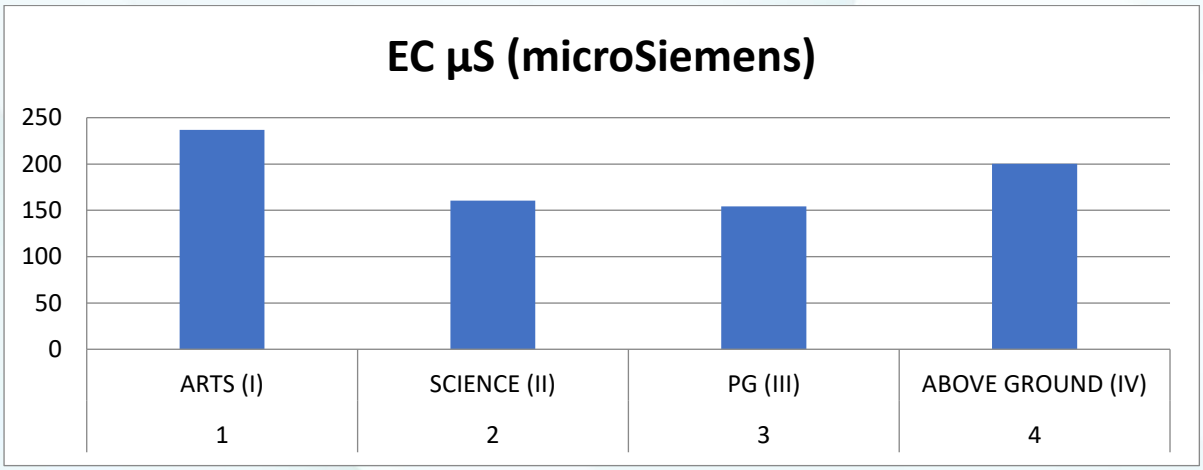
Sl. No	Soil Sample	pH reading	Remarks
1.	ARTS (I)	4.91	Slightly/ weakly acidic

2.	SCIENCE (II)	5.14	"
3.	PG (III)	5.04	"
4.	ABOVE GROUND (IV)	4.90	"



3. Electrical Conductivity

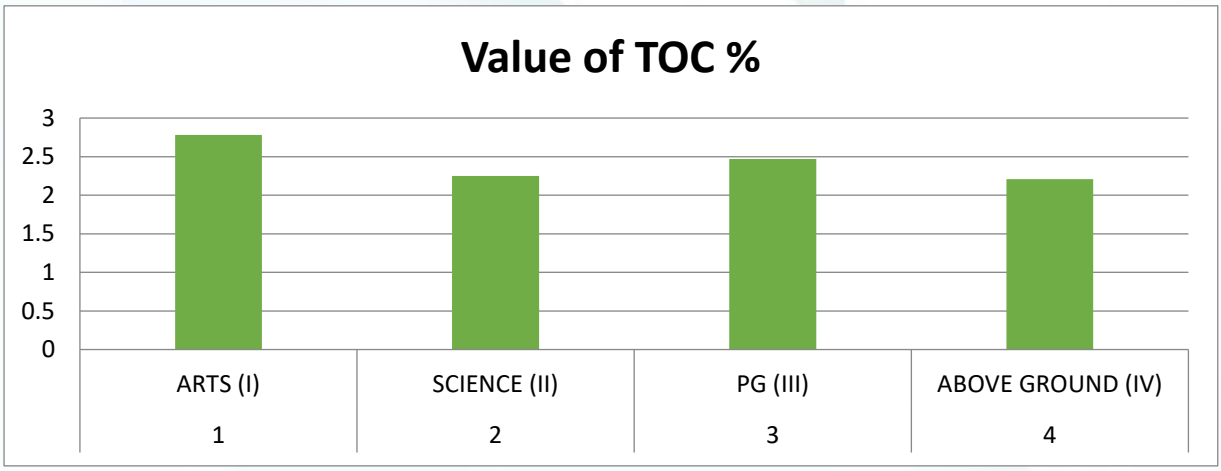
Sl. No	Soil Sample/ Location	EC µS (microSiemens)	Remarks
1.	ARTS (I)	236.8	Optimum salinity
2.	SCIENCE (II)	160.4	Salinity low, effect negligible
3.	PG (III)	154.4	Salinity low, effect negligible
4.	ABOVE GROUND (IV)	200.1	Optimum salinity



4. Total Organic Carbon

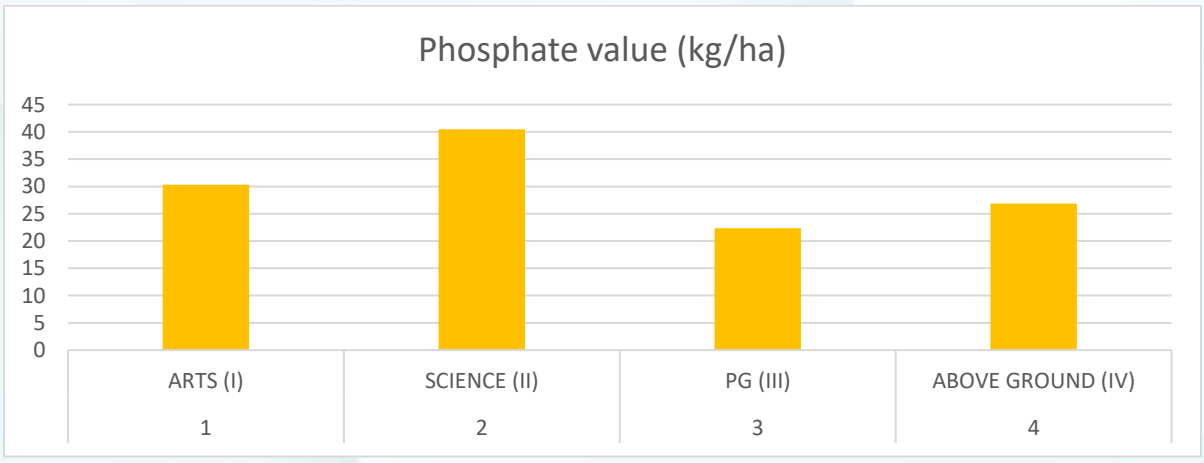
Sl. No	Soil Sample/ Location	Value of TOC %	Remarks

1.	ARTS (I)	2.78	High TOC content
2.	SCIENCE (II)	2.25	"
3.	PG (III)	2.47	"
4.	ABOVE GROUND (IV)	2.21	"



5. Phosphate

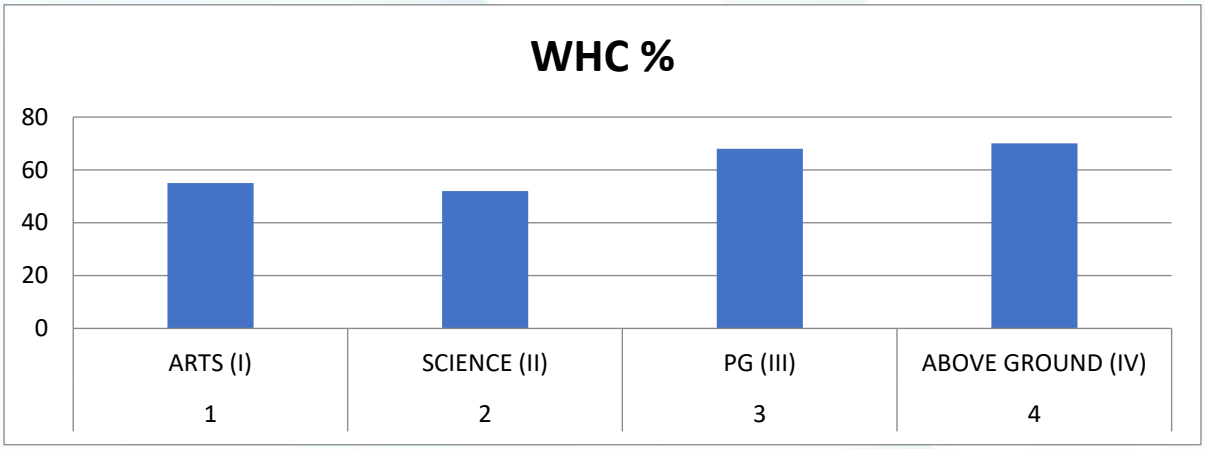
Sl. No	Soil Sample/Location	Phosphate value (kg/ha)	Remarks
1.	ARTS (I)	30.3	High in Phosphate content
2.	SCIENCE (II)	40.5	"
3.	PG (III)	22.35	"
4.	ABOVE GROUND (IV)	26.85	"



6. Water Holding Capacity

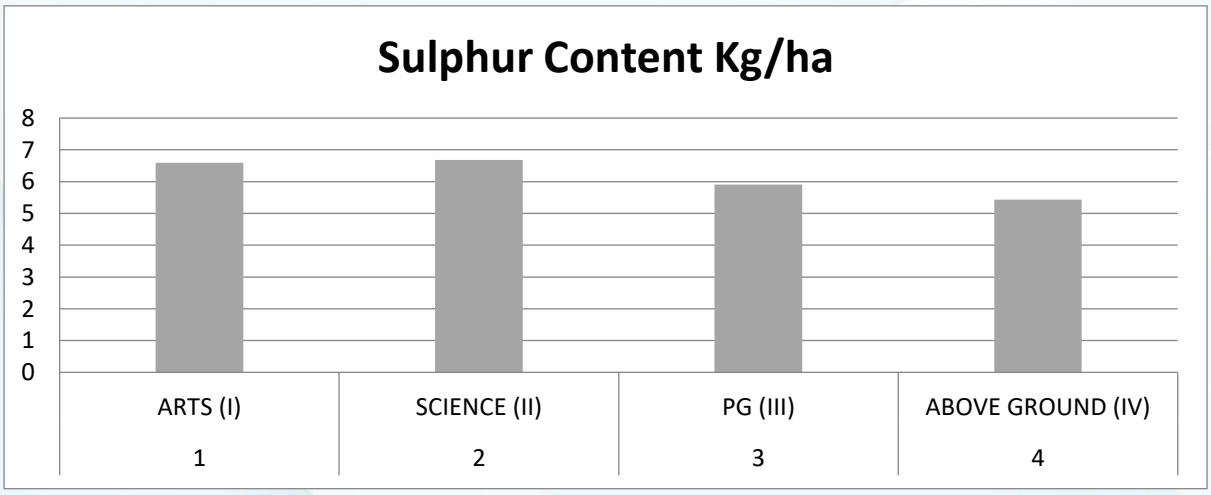
Sl. No	Soil Sample/ Location	WHC %	Remarks
1.	ARTS (I)	55	High Water Holding Capacity

2.	SCIENCE (II)	52	"
3.	PG (III)	68	"
4.	ABOVE GROUND (IV)	70	"



7. Sulphur

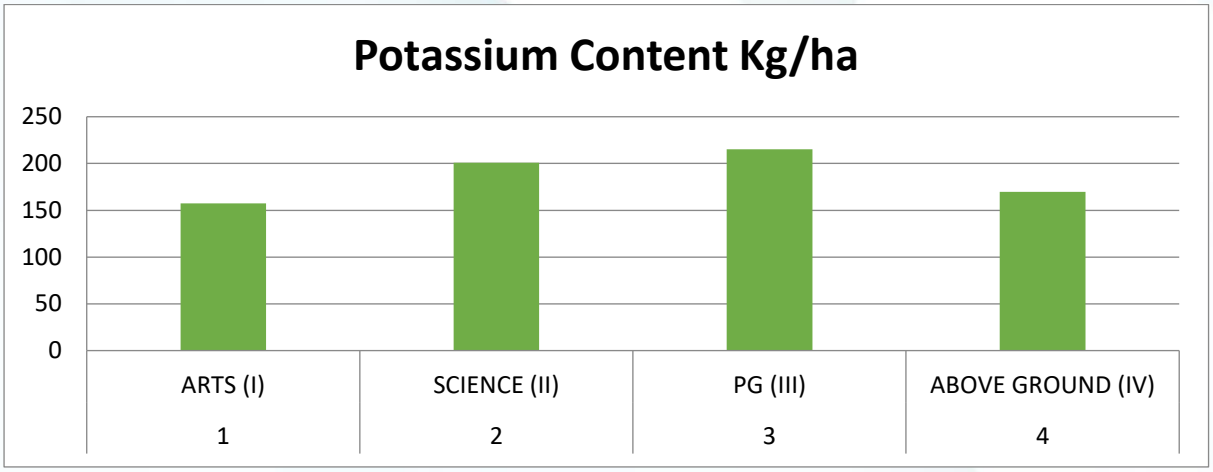
Sl. No	Soil Sample/ Location	Sulphur Content Kg/ha	Remarks
1.	ARTS (I)	6.5944	Low in Sulphur
2.	SCIENCE (II)	6.6784	"
3.	PG (III)	5.9076	"
4.	ABOVE GROUND (IV)	5.4343	"



8. Potassium

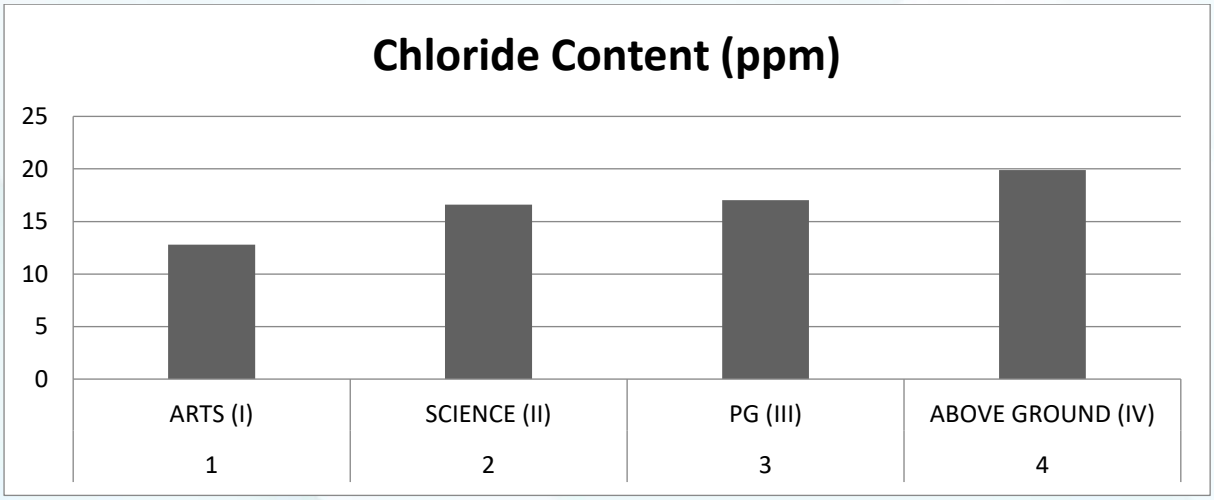
Sl. No.	Soil Sample/ Location	Potassium Content Kg/ha	Remarks
1.	ARTS (I)	157.28	Medium range

2.	SCIENCE (II)	200.87	"
3.	PG (III)	215.35	"
4.	ABOVE GROUND (IV)	169.57	"



9. Chloride

Sl. No	Soil Sample/ Location	Chloride Content (ppm)	Remarks
1.	ARTS (I)	12.78	High in Cl^- content
2.	SCIENCE (II)	16.61	"
3.	PG (III)	17.04	"
4.	ABOVE GROUND (IV)	19.88	"



Assessment of water quality

The water samples were collected from three different sources within the college campus and analysed as per standard procedures. The major parameters include pH, Total Dissolved solids, Conductivity, DO, Total Hardness, Calcium, Magnesium, Iron, Sulphate BOD and ORP. The results are compared with the values of drinking water standards prescribed by BIS.

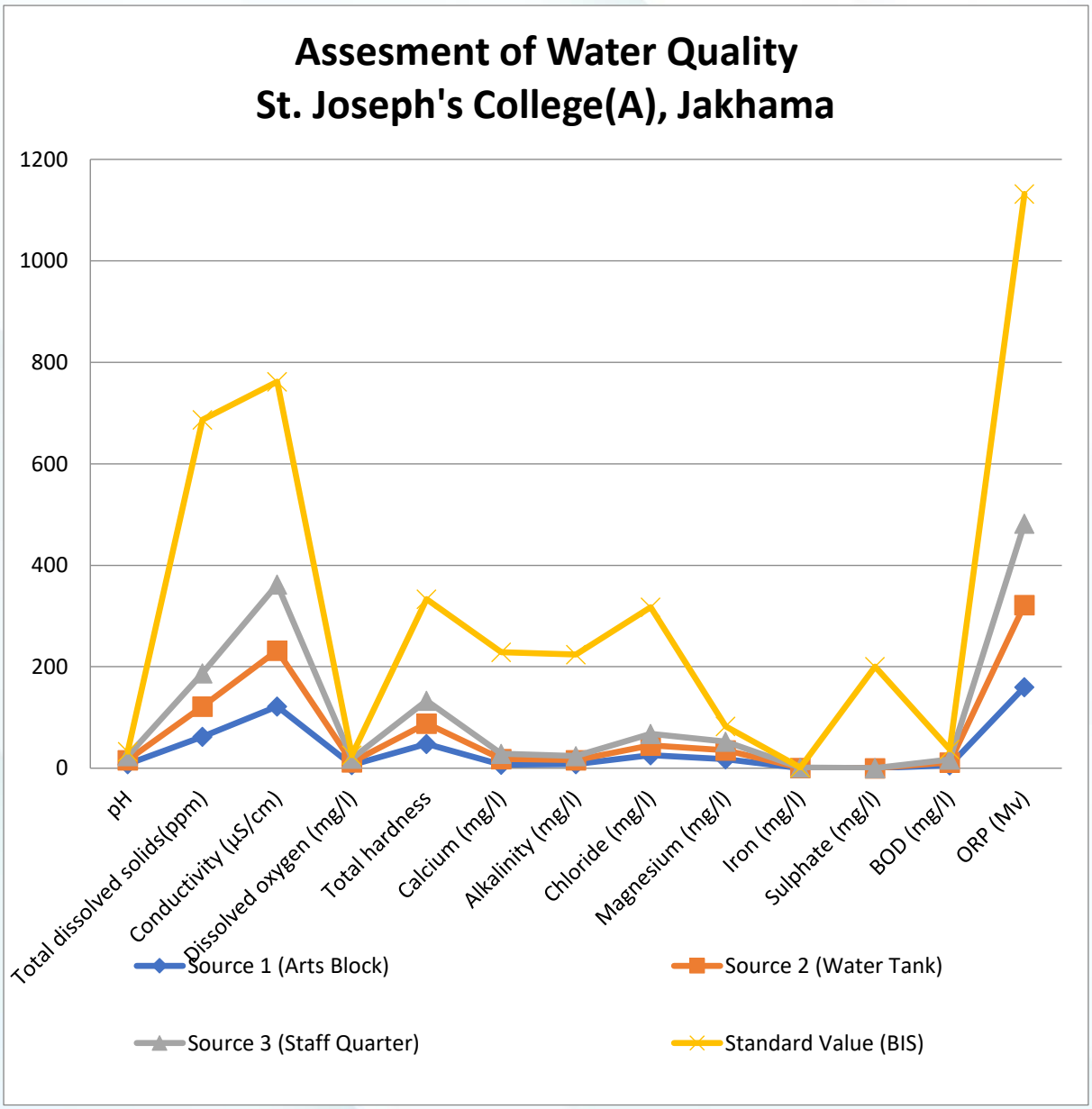
Methods used to test the Parameters

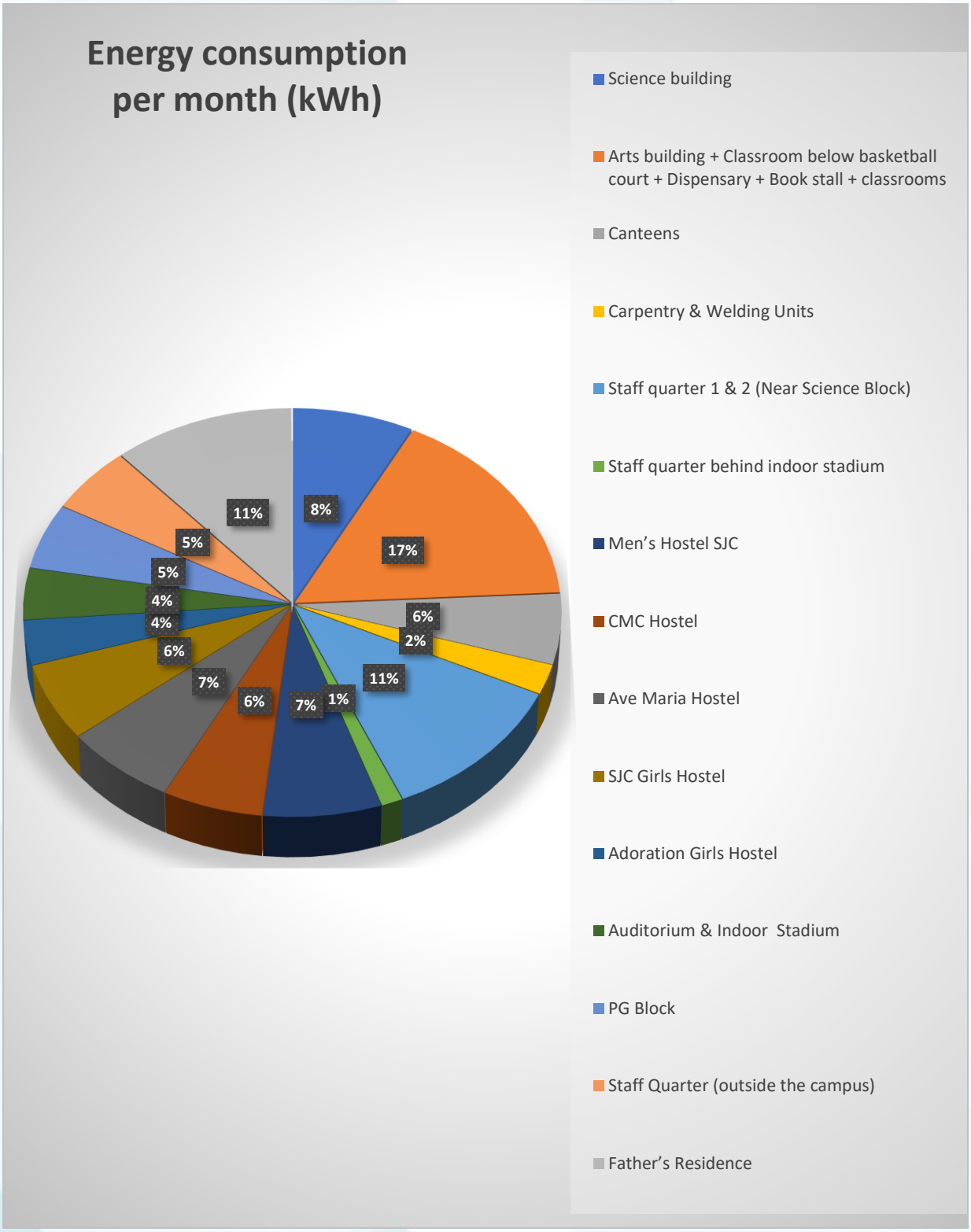
Parameters	Methods
pH	pH meter
Total dissolved solids	Gravimetric analysis
Conductivity	Conductivity meter
Dissolved oxygen	Titration method against (0.1 N) hypo solution
Hardness	Titration method against (0.05 N) EDTA solution
Calcium and magnesium	Titration with sodium salt of EDTA
Alkalinity	Indicator via titration method with (0.01N) hypo solution
Chloride	Titration against (0.01 N) $AgNO_3$ solution
Iron	Titration against (0.01 N) potassium permanganate
Sulphate	Turbidity technique
BOD	Titration method against (0.025 N) hypo solution
ORP	-

The various water quality parameters selected for chemical analysis are listed in the table below:

Parameters	**Source 1** (Arts Block)	**Source 2** (Water Tank)	**Source 3** (Staff Quarter)	**Standard Value (BIS)**
pH	8.27	7.68	8.20	6.5-8.5
Total dissolved solids(ppm)	62	60	65	500
Conductivity (µS/cm)	122	110	130	400
Dissolved oxygen (mg/l)	6.11	6.05	6.8	6.8
Total hardness	48	40	45	200
Calcium (mg/l)	7.21	11.22	10	200
Alkalinity (mg/l)	8.27	7.68	8.20	200
Chloride (mg/l)	25.5	19.8	22.3	250

Magnesium (mg/l)	17.9	17.5	16.9	30
Iron (mg/l)	0.15	0.50	0.35	0.3
Sulphate (mg/l)	0.1	0.1	0.1	200
BOD (mg/l)	5.9	5.7	5.7	20
ORP (Mv)	160	162	160	650




Energy consumption per month (kWh)
8%
17%
6%
2%
11%
1%
7%
6%
7%
6%
4%
4%
5%
5%
11%
Science building
Arts building + Classroom below basketball court + Dispensary + Book stall + classrooms
Canteens
Carpentry & Welding Units
Staff quarter 1 & 2 (Near Science Block)
Staff quarter behind indoor stadium
Men's Hostel SJC
CMC Hostel
Ave Maria Hostel
SJC Girls Hostel
Adoration Girls Hostel
Auditorium & Indoor Stadium
PG Block
Staff Quarter (outside the campus)
Father's Residence

Sl. No	Location	Energy consumption per month (kWh)
1	Science building	930.19
2	Arts building + Classroom below basketball court + Dispensary + Book stall + classrooms	2013.933
3	Canteens	683.28
4	Carpentry & Welding Units	285.792
5	Staff quarter 1 & 2 (Near Science Block)	1397.7815
6	Staff quarter behind indoor stadium	151.05
7	Men's Hostel SJC	842.34
8	CMC Hostel	713.418
9	Ave Maria Hostel	800.324
10	SJC Girls Hostel	740.228
11	Adoration Girls Hostel	432.24
12	Auditorium & Indoor Stadium	501.174
13	PG Block	642.349
14	Staff Quarter (outside the campus)	656.95
15	Father's Residence	1398.74
	Total energy consumption in kWh/month	12189.79
	Energy cost per month (Rs.6.8/kWh)	Rs. 82,890.572/month

Waste Management Mechanism and Implementation

The college besides being a hub of educational activity includes residential campus and a vibrant community performing different functions and duties. Waste generated during the process are managed and controlled by the college itself.

Segregation of waste for degradation, recycling and disposal are done at the source to prevent threat to life and the environment. The details of waste management practices are highlighted below:

Types of Waste		Constituents	Disposal method
E-Waste		Old computer parts, electronic boards and wires, old printers, old batteries etc	Partnering agency E-Circle
Non Bio-degradable solid waste		Broken glass wares, empty plastic & glass containers	Broken glass wares are segregated from other waste and disposed off. Reusable empty plastic/glass containers are washed thoroughly and reused for different purposes.
Biodegradable solid waste		Food waste, vegetable peels, leaves etc	Piggery, Vermi-composting
Chemical waste	Solid	Filter paper, broken glass wares,	Incineration Land fill
	Liquid	Acids, organic solvents	Diluted with water
	Toxic	Heavy metals	Disposed in isolated surroundings
Water waste		Urinals, bathrooms	Proper drainage system

Solid waste: The solid wastes collected from different labs are mostly composed of filter paper, waste chemical, broken glass wares, empty plastics/ glass containers. Reusable empty plastic/ glass containers are washed thoroughly and reused for different purposes. The rest of the wastes are disposed-off by thermal incineration (90%) and land fill (10%).

Liquid waste: Concentrated inorganic acids such as HCl, H_2SO_4, HNO_3, etc., that are used during experiments are diluted with copious amount of water before disposing. Contaminated organic solvent such as acetone from washing glass wares are recovered using rota-evaporator and reused.

Chemical waste: The chemical wastes that are collected from different laboratories can be categorised into three categories: Solid, Liquid and Toxic. Each of these categories of chemical wastes is disposed-off using standard and safety methods.

E-waste: Electronic waste poses one of the present day hazards. The management of this waste requires expert handling. As such, E-circle is the partnering agency of the college for the management and disposal of the E-waste.

Vermicomposting At Science Block

E-Waste Collection Bin

Incinerator at Science Block

Incinerator at Arts Block

Chemical Waste Management at Chemistry laboratory

Since the college is managing the waste on its own, efforts are on, to evolve a better and efficient system by appointing a Welfare Committee along with a disposal unit or squad and building a common dumping site, all with the involvement of the whole community.

Water Management

Water is an essential yet a luxurious commodity in today's world. St. Joseph's College (Autonomous) and its community are fortunate to be abound with pure clean water from natural source without undergoing any stages of treatment. The college receives a continuous and steady water supply from Dzukou valley through the pipeline. The water is collected in a primary reservoir and distributed throughout the college by subsidiary pipelines. In addition, Rain water Harvesting facilities are available at five different locations and more such facilities to be constructed are in the offing.

Rain Water Harvesting at SJC Girl's Hostel

Rain Water Harvesting at SJC Girl's Hostel

Rain Water Harvesting at CMC Girl's Hostel

Rain Water Harvesting at Science Block

To inculcate the efficient utilisation of water and reserving it for future use (especially during the dry season) requires environmental consciousness and a love for Mother Nature. Thus, the college always encourages judicious utilisation of water available in the campus.

GREEN INITIATIVES OF THE COLLEGE

The college promulgate Environmental consciousness by introducing individual courses such as Environmental Studies, Environmental Sociology (both UG and PG), Green Chemistry etc., as part of the curriculum. Apart from the curriculum, mention may be made of various environmental friendly activities conducted by the college:

1. World Water Day was observed on 27th March, 2019 by the NCC (Girls) Cadets of the College. They visited the nearby Hostels and gave talks to create awareness about the judicious use of water and rain water harvesting
2. World Environment Day observed on 5th June 2019, by the NCC of SJC with 15 cadets by distributing old newspapers to the canteens in and around the college and cloth bag to the staff.
3. On 14th May, 2020, the NNC (Girls) cadets under the activity "**Mission Paper Bag India**" made 1,000 self-made eco-Friendly paper bags and distributed it to the shopkeepers, green grocers and streets vendors. This was taken up in order to train the cadets the skills of self-dependency and at the same time promote eco-friendly environment in the most economical way and aid greengrocers, shopkeepers and street vendors during the lockdown.
4. On 5th June, 2020, the NCC (Girls) cadets of the college observed World Environment Day by donating and distributing 500 paper bags to green grocers and street vendors at PR Hill, IOC and Mhonkhola area in Kohima, to promote eco-friendly environment and non-plastic products. The paper bags were made by the NCC girls and the Associate NCC Officer (SW) from old newspapers, magazines, calendars, and books. Also, 18 cadets participated in Quiz on National Environment Awareness organized by 24 NL (I) COY NCC, Kohima and an NCC Unit from Uttar Pradesh.

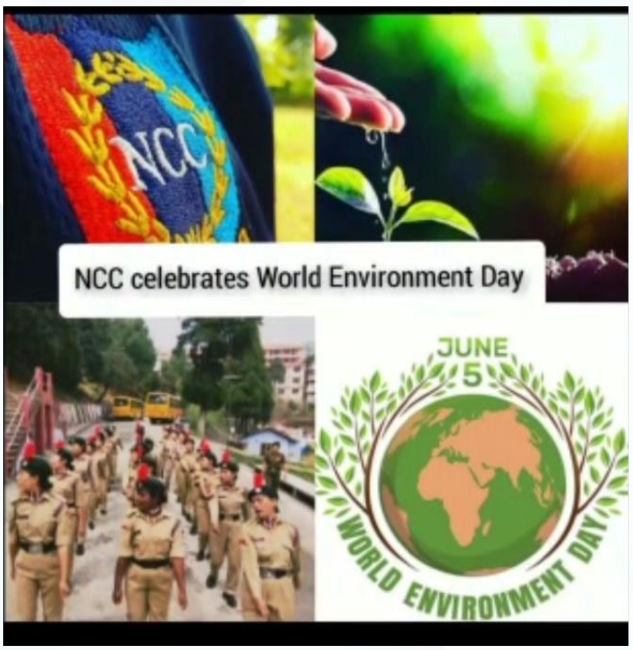
5. 20th – 23rd July, 2020: 11 NCC (Girls) cadets attended an online Capsule on Disaster Management for NCC organized by NDRF Academy, Nagpur (Maharashtra)

6. From 12th to 14th Dec., 2020, as activity under *Swachhta Pakhwada*, cleaning of statues was carried out at Kohima Catholic Cathedral and at St. Joseph's College (Autonomous) Campus, by 30 NCC (Girls) Cadet.

In addition to the environment and Eco- friendly activities, the college has undertaken Green Initiatives, some of which are given below:

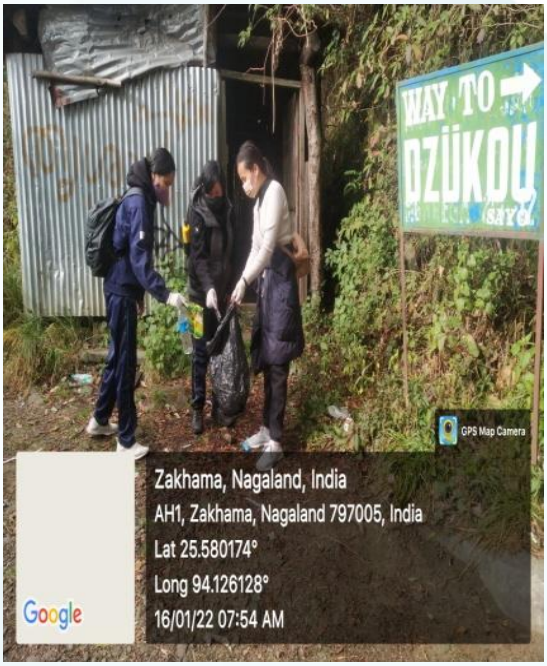
1. SOLAR PANELS, SOLAR LAMPS AND SENSOR-BASED ENERGY CONSERVATION LIGHTING ARE INSTALLED IN THE CAMPUS TO SAVE ENERGY

2. ANNUAL OBSERVATION OF WORLD ENVIRONMENT DAY ON 5TH JUNE



3. CONDUCTING CLEANLINESS DRIVE IN THE CAMPUS AND THE SURROUNDING AREAS

4. CONDUCTING OF CLEANLINESS DRIVE ON SITES OF IMPORTANCE IN KOHIMA DISTRICT



Initiated by Col Manjeet Katoch, Commanding Officer, 1 Nagaland Girls' Battalion NCC, Kohima, 13 NCC cadets (Senior Wing) of St. Joseph's College (Autonomous), Jakhama along with their Associate NCC Officer and 2 PI staff undertook a trek cum plogging to Dzükou Valley on April 29 as a gesture of environmental protection.

5. DUSTBINS AND WASTE BOXES ARE KEPT IN DIFFERENT AREAS OF THE COLLEGE CAMPUS AND ALSO IN ALL THE CLASSROOMS FOR REGULAR COLLECTION OF WASTES

6. PLANTATION DRIVES

ST.JOSEPH'S COLLEEGE JAKHAMA(AUTONOMOUS)

ECO CLUB PLANTATION CUM CLEANLINESS DRIVE

DATE:**14-OCTOBER 2022**

VENUE: **Near SJC Women's hostel**

ORDER OF THE PROGRAMME

1.Invocation :**Br.Joel Ajay**

2.Welcome note :**Mr.Vihuzo Kense**

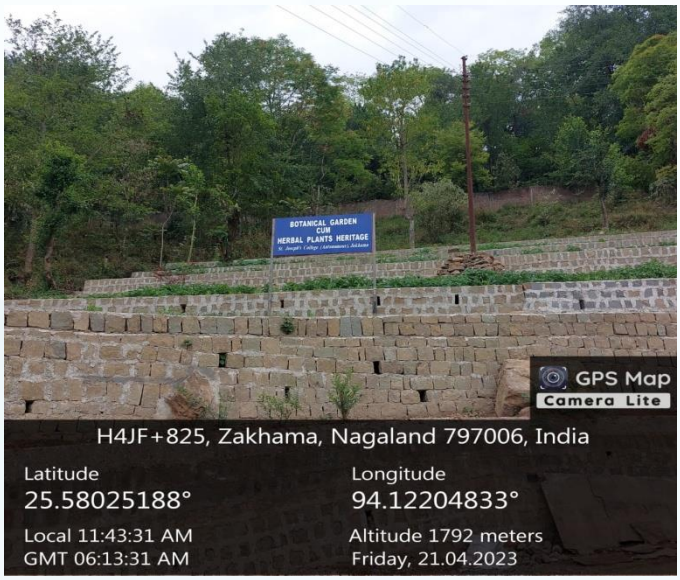
3.Short speech :**Fr.Binoy(Administrator)**

followed by the plantation of the sapling

4.Vote of thanks :**Daniel Tep**

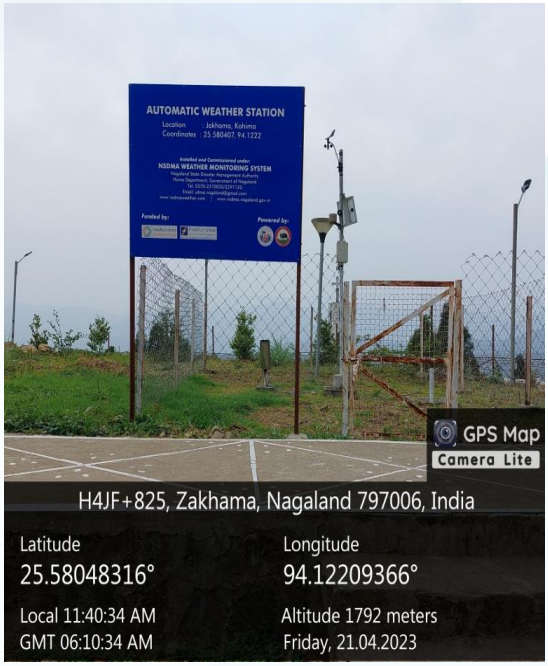
7. HERBAL PLANTS HERITAGE SITE AND GARDENS

The college maintains Botanical Garden cum Herbal Plants Heritage. In addition, the Department of Botany undertakes gardening of Medicinal Plants and Floriculture with the objectives to help students gain knowledge, experience and practice the different methods of propagation of different plants and understand the basic physiology, metabolism, growth and development of plants. Such practices help in enhancing their knowledge of the plants and flowers and the medicinal properties of plants they cultivate and also contribute to the ecological diversity of the campus.

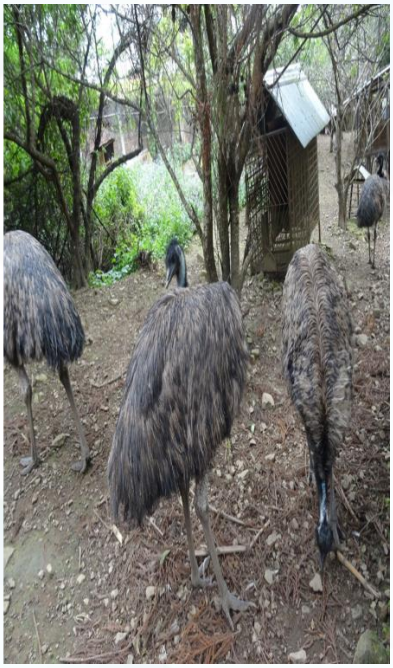


8. ORCHARD AND FARM

9. WEATHER STATION



10. MINI ZOO



10. OBSERVATION OF ENVIRONMENT AND ECOLOGICAL DAYS AND ACTIVITIES

i. Commemorating the **International Youth Day** on 12th August 2021, the Ambassadors of the College conducted a Cleanliness drive around the Raj Bhavan area in Kohima

ii. **Clean India Campaign:** 23rd – 30th Oct., 2021- The NCC (Girls) Cadets of St. Joseph's College (A), Jakhama, participated in the Clean India Campaign by carrying out sanitation drive in Jakhama and Kohima

iii. On the occasion of the 25th National Youth Festival, celebrated from 12th – 16th January, 2022, the NCC (Girls) Cadets of the college conducted a cleanliness drive from the footpath till the Dzukou Valley

iv. Observation of World Sustainable Energy Day: 26th February 2022

v. Celebrating Earth Day: 22nd April, 2022

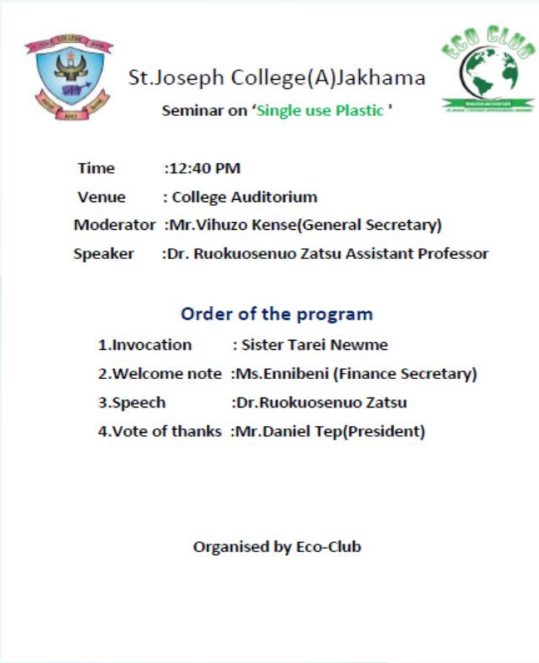
vi. Swachata cum Yoga Program was held on 14th May 2022 at JCC Kigwema organized by NSS Cell, Nagaland, Department of Youth Resources and Sports, Govt of Nagaland in collaboration with Japfu Christian College, Kigwema. 19 Volunteers from NSS Unit of St. Joseph's College participated at the event

11. Organising Environmental awareness campaigns and activities

i. In order to create awareness about the rich biodiversity of the state, the NSS members of the college organised a **Biodiversity Walk** on the 11th February 2022.

ii. **On the 7th of November 2022**, the Eco Club of St. Joseph's College (A) Jakhama, in collaboration with Department of Environment, Forest and Climate Change, Govt. of Nagaland, under National Mission on Himalayan Studies organised an Essay Competition on the theme "GREEN NAGALAND".

iii. The Eco Club of St. Joseph's College (Autonomous) Jakhama, organised a One day seminar on the theme "**Single Use Plastics**" on the 24th of March 2023


St.Joseph College(A)Jakhama

Seminar on 'Single use Plastic '

Time :12:40 PM
Venue : College Auditorium
Moderator :Mr.Vihuzo Kense(General Secretary)
Speaker :Dr. Ruokuosenuo Zatsu Assistant Professor

Order of the program

1.Invocation : Sister Tarei Newme
2.Welcome note :Ms.Ennibeni (Finance Secretary)
3.Speech :Dr.Ruokuosenuo Zatsu
4.Vote of thanks :Mr.Daniel Tep(President)

Organised by Eco-Club

iv. Dr. Joyrison Kamba, Director of Eco Club, St. Joseph's College (Autonomous) Jakhama, participated in "One day seminar cum cleanliness drive" on the theme Mission Life (Lifestyle for Environment), held on the 24th May 2023 and organised by Department of Environment, Forest & Climate Change under NMHS Nagaland

12. MANAGEMENT OF E-WASTE

E-waste club, of St. Joseph's College (A), signed an **E-Waste management agreement** with **e-circle**, Dimapur Nagaland, on the 12th of September, 2022 for a period of 1 year from the date of its execution, which can be renewed at the end of every period by mutual consent. e-Circle in partnership with the first party Hulladek Recycling Private Limited,Kolkata, a company incorporated under the companies Act 2013, takes part in the collection and storage of E-waste in Nagaland.

The E-Waste Club, SJC (A) in collaboration with e-Circle joined hands in quest for a sustainable and pollution free environment.

The E-Waste club, SJC (A), Jakhama, with the aim of e-waste free environment carried out door to door collection drive at CMC Women's Hostel, Art's Block and Men's Hostel. The E-Waste club conducted the collection drive on the 12th of February, 7th and 9th of March, 2023. Some of the wastes collected were earpiece, desktop, laptop charger, wires etc.

13. ONE DISTRICT ONE GREEN CHAMPION

St. Joseph's College (Autonomous), Jakhama, was recognized as the District Green Champion of Kohima district for the Academic Year 2020- 2021 under the Mahatma Gandhi National Council of Rural Education "One District One Green Champion", Swachhta Action Plan 2020-2021

तारीख / Date 09.08.2021
ज्ञापनसंख्या/ Memo no: 212

सत्यमेव जयते

भारतसरकार /Government of India
महात्मा गांधी राष्ट्रीय ग्रामीण शिक्षा परिषद / Mahatma Gandhi National Council of Rural Education
उच्चशिक्षाविभाग/Department of Higher Education
शिक्षामंत्रालय / Ministry of Education

District Green Champion Certificate

This is to certify that **St. Joseph's College (Autonomous)** is hereby recognized as **District Green Champion** of **Kohima** District for the Academic Year 2020-21. The Institution has successfully set up the Swachhta Action Plan Committee, adopted and implemented the best practices in the areas of Sanitation, Hygiene, Waste Management, Water Management, Energy Management and Greenery Management.

This certificate is given in the presence of **Shri Gregory Thejawelie, NCS,** Deputy Commissioner Kohima District, Nagaland.

JULY 2021

Dr W G Prasanna Kumar
Chairman
MGNCRE, Ministry of Education
Government of India

14. LAUNCHING OF ECO-FRIENDLY PRODUCTS BY THE DEPARTMENT OF SOCIOLOGY

Launching of Newspaper Pencils: The first ever Newspaper pencils in Nagaland was launched by the Department of Sociology, St. Joseph's College (Autonomous), Jakhama under the entrepreneurial initiative of Mr. Keneisezo Thomas Belho, a Post Graduate Student of Department of Sociology of the College

Launching of Plantable Badge: An Eco- Friendly Initiative by the Department of Sociology, St. Joseph's College (Autonomous), Jakhama

EASTERN MIRROR

DIMAPUR, SUNDAY, SEPTEMBER 11, 2022

St. Joseph's College (A), Jakhama students introduce plantable badges

In order to encourage use of eco-friendly products and entrepreneurial spirit among the students, Sociology students of St. Joseph's College, Jakhama, introduced a plantable badge on September 9.

Keneisezo Thomas Belho, a post graduate student of Sociology and founder of Kenbel newspaper pencil, informed that he initiated the programme in order to create awareness and protect the environment.

According to Belho, such plantable badges, being introduced in the college, could be the first of its kind in Nagaland. He has informed to introduce plantable pencil during the phase-2 in the days to come. (EMN)

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CONCLUSION

Environmental sustainability is becoming an increasingly important issue for the nation whereby the role of higher educational institutions in relation to environmental sustainability is becoming more prevalent. Moreover, a clean and healthy environment aids in effective learning and provides a conducive learning environment. Accordingly, educational institutions are becoming more sensitive to environmental factors and more concepts are being introduced to make them eco-friendly. To preserve the environment within the campus, various modules are applied by the educational institutions to solve their environmental problems such as promotion of the energy savings, recycle of waste, water reduction, water harvesting etc. However, such activities pursued by the institution can also create a variety of adverse environmental impacts. Thus, the Green Audit of St. Joseph's College (Autonomous), Jakhama is conducted to ascertain the environmental performance of the college (based on its environmental policies and objectives) by evaluating the actual scenario at the campus.

The Green Audit Report of the college can serve as a useful tool to determine how and where the college is utilization of energy; the college can then consider how and where to implement changes and make savings. It can help manage the type and volume of waste, thereby determining better method to improve waste minimization plan and recycling project. Green auditing and the implementation of mitigation measures is a win-win situation for the whole institution and the environment. The report can be a basis to create health consciousness and promote environmental awareness, values and ethics. The Green Audit Report can also aid the college in financial savings through reduction of resource use besides providing the management, faculties, students and staff a better understanding of the Green impact on campus, giving an opportunity for the developing a sense of personal and social responsibility to the students and teachers. It is, thus, an imperative action of the college to evaluate its own contributions toward a sustainable future

The Green Audit Report is a clear indication that no matter the insignificant stride made to create a better environment, it is not a trivial affair at all. These efforts of St. Joseph's College (Autonomous), Jakhama, Nagaland, India, are a big leap towards ensuring a better environment for the future generation toward a habitable and sustainable world.

BENEFITS OF GREEN AUDIT

- Serve as an aid to protect and conserve the environment
- Recognise the cost effective methods through efficient waste management and resource optimisation.
- Comprehend the impact of human activities on environment
- Ensures conformity with the applicable laws pertaining to pollution, ecology and environmental factors.
- Ensuring the college with an environmental friendly campus
- Utilisation of energy efficiently
- Promotes environmental awareness to all.

FUTURE ACTION PLAN OF THE COLLEGE:

i. To set up committees, units and groups to manage and oversee specific areas of environmental concern.

ii. To enrol and encourage every member of the college community for active participation and responsibility.

iii. Earmarked plans and project related to environment to be done on a priority bases within a given time.

iv. Conduct seminars and programmes on environmental management and protection with specialists, experts and professionals for all the stakeholders.

v. Periodically analyse and collect data of the ecosystem and the environment of the college, with the active involvement of the faculty, research scholars and students.

vi. Maintain records and reports of the surrounding environment.

Annexure 1: Diversity of Flora

S.N	Names	S.N	Names	S.N	Names	S.N	Names
1	*Leucosceptum canum*	39	*Cupressus lusitanica*	77	*Coelogyne mossiae*	115	*Rumex dentatus*
2	*Laggima crispata*	40	*Araucaria heterophylla*	78	*Tropaeolum majus*	116	*Brassica campestris*
3	*Phyllanthus tenellus*	41`	*Debrigiasia longifolia*	79	*Chamaerops humilis*	117	*Rhododendron lapponicum*
4	*Nuttalanthus floridanus*	42	*Punica granatum*	80	*Galinsoga parviflora*	118	*Chenopodium giganteum*
5	*Eragrostis amabilis*	43	*Schefflera trevesioides*	81	*Canna indica L.*	119	*Curculigo*
6	*Rosa chinensis*	44	*Juniperus occidentalis*	82	*Prunus persica*	120	*Hedera nepalensis*
7	*Buddleja davridii*	45	*Eupatorium sp.*	83	*Myrrhis odorata*	121	*Zanthoxylum aramatum*
8	*Sonchus oleraceus*	46	*Malvastrum coromandelianum*	84	*Lantana camara*	122	*Thuja aborvitae*
9	*Passiflora edulis*	47	*Arachinodus aristala*	85	*Polygonum chinensis*	123	*Malus sylvestris*
10	*Prunus domestica*	48	*Artemesia princeps*	86	*Hedera helix*	124	*Coinvine*
11	*Silene armenia*	49	*Rubus ellipticus*	87	*Dendrochilum*	125	*Caryota mitis*
12	*Tagetes patula*	50	*Selaginella kraussiana*	88	*Dennstaedtia punctilobula*	126	*Lepturus repens*
13	*Rumux ponfertus*	51	*Thalictrum foliolosum*	89	*Tradescantia zebrina*	127	*Dislobium pilosum*
14	*Callistemon citrinus*	52	*Vernonia gigantea*	90	*Erigeron sumatrensis*	128	*Bauhinia variegata*
15	*Prunus avium*	53	*Cyperus rotundus*	91	*Musa sp.*	129	*Digitaria sp.*
16	*Oenothera moseo*	54	*Citrus limon*	92	*Lactuca virosa*	130	*Centaurea cyanus*
17	*Bidens pilosa*	55	*Bellis perennis*	93	*Cerphis bursiflora*	131	*Woodsia*
18	*Smilax officinalis*	56	*Vicia lathyroides*	94	*Eluiscne indica*	132	*Kerria japonica*
19	*Zamia integrifolia*	57	*Allium ascalonicum*	95	*Sechium edule*	133	*Centella asiatica*
20	*Drymaria cordata*	58	*Rubus sp.*	96	*Clematis vitalba*	134	*Dracaena sp.*
21	*Persca americana*	59	*Alstroemeria*	97	*Plantago*	135	*Potentilla hebichigo*
22	*Phoenix roebeleni*	60	*Galium mollugo*	98	*Argyranthemum frutescens*	136	*Hebiscus rosa-sinensis L.*
23	*Desmodium incanum*	61	*Agloaomorpha fortunei*	99	*Euryops pectinatus*	137	*Digitaria ischaemum*
24	*Grevillea robusta*	62	*Geranium rotundifolium*	100	*Oenanthe javanica*	138	*Rottboellia*
25	*Crytomeria japonica*	63	*Athyrium filix-femina*	101	*Cirsium muticum*	139	*Phragnites australis*
26	*Macarang pustulata*	64	*Duranta*	102	*Centaurea cyanus*	140	*Fraxinus excelsior*
27	*Pseudognaphalium affine*	65	*Taraxacum officinale*	103	*Sagina saginoides*	141	*Clinopodium nepeta L.*
28	*Mangifera indica*	66	*Blumea densiflora*	104	*Panda oleora*	142	*Ouercus acutissima*
29	*Polypogon monspeliensis*	67	*Bougainvillea spectabilis*	105	*Spiraea vanhouttei*	143	*Runus idaeus*
30	*Cycas revoluta*	68	*Solanum jasminoides*	106	*Mucuna pruriens*	144	*Gynura bicolor*
31	*Citrus sinensis*	69	*Fagopyrum cymosum*	107	*Solanum tuberosum*	145	*Adansonia digitalia L.*
32	*Alnus spaethii*	70	*Rosa*	108	*Solanum lycopusicum*	146	*Pteridium aquilium*
33	*Erigeron divergens*	71	*Rhododendron arboreum*	109	*Vinca major*	147	*Setaria palmifolia*
34	*Pinus resinosa*	72	*Poormanis orchid*	110	*Primula matthioli*	148	*Solanum lycoperbicum var. Cerasizorme*
35	*Thuja occidentalis*	73	*Ludwigia hyssopifolia*	111	*Citrus cavaleriei*	149	*Ricinus communis*
36	*Smilax ovaliforia*	74	*Calendula officinalis*	112	*Azadirachta indica*	150	*Athyrium niponicum*
37	*Cedrus deodara*	75	*Bauhinia nahlu*	113	*Glebioris coronaria*	151	*Atocion armeria L.*
38	*Aglaomorpha*	76	*Fragaria vesca*	114	*Aloe vera*	152	*Prunus seretina*
						153	*Alnus nepalensis*

Argyranthemum frutescens

Calendula officinalis

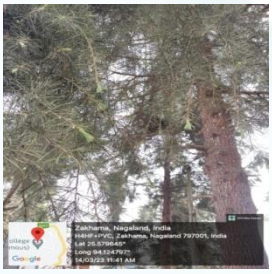
Dysphania botrys

Euryops chrysanthemoides

Centaurea cyanus

Cycas revolute

Pinus resinosa



Prunus domestica

Rosa chinesis

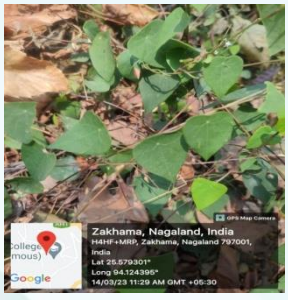
Callistemon citrinus

Ageratum conyzoides

Alnus spaethii

Blumea densiflora

Clematis vitollo



Debregereasia longifolia

Desmodium incanum

Fagopyrum cymosum

Geranium rotundifolium

Glebionis coronaria

Glebionis coronaria

Leucosceptrum canum

Mycelis muralis

Oxalis montana

Prunus serotina

Quercus acutissima

Chlorophytum comosum

Rumex dentatus

Tropaeolum

Seteria palmifolia

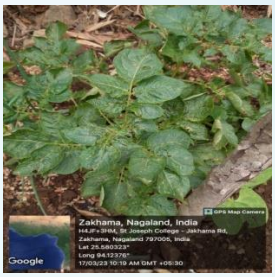
Sechium edule

Solanum tubersum

Aloe vera

Vernonia gigantea

Centaurea cyanus



Gynura bicolor

Solanum lycopersicum var. cerasiforme

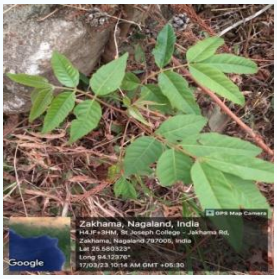
Canna indica

Melia dubia

Fagopyrum cymosum

Plantango

Sechium edule



Athyrium niponicum

Solanum lycopersicum

Chenopodium giganteum

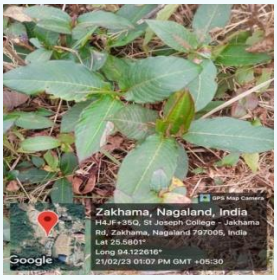
Erigeron divergens

Polygonum chinensis

Gynura bicolor

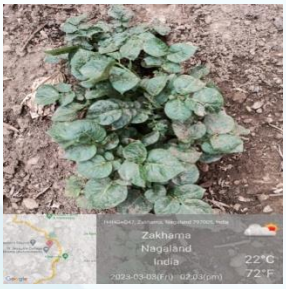
Solanum tuberosum

Setaria palmifolia

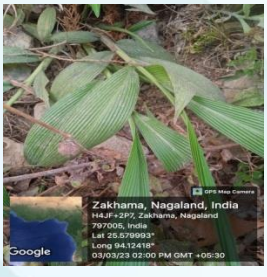


Thalictrum foliosicum

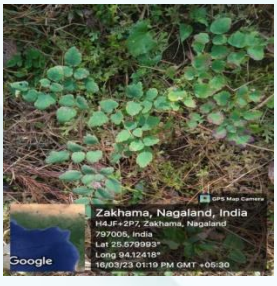
Oenanthe javanica



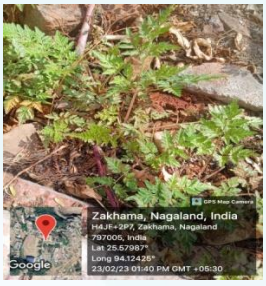
Alstroemeria psittacina



Artemisia roxburghiana

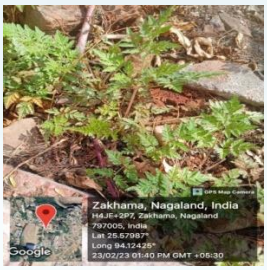


Bauhinia forficata



Bellis perennis

Callistemon vaminalis



Chlorophytum comosum

Chrysamthemum garland

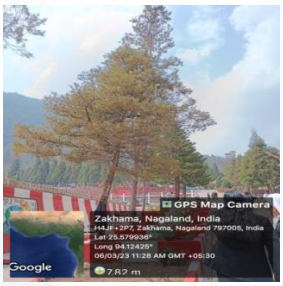
Chrysamthemum garland

Cryptomeria japonica

Erigeron karvinskianus

Eupatorium adenophorum

Oxalis debilis



Rosa rubiginosa

Ruscus aculeatus

Tradescantia zebrina

Tridax procumbens

Vicia sativa

Zantedeschia aethiopica

Araucaria heterophylla

Digitaria ischaemum

Vicia sativa

Galinsoga parviflora

Galium mollugo

Plantago

Polypogon monspeliensis

Potentilla hebiichigo

Pseudognaphalium affine

Taraxacum officinale

Thuja occidentalis

Prunus cerasoides

Rumex dentatus

Acalypha siamensis

Digitaria sanguinalis

Ageratina adenophora

Juniperus occidentalis

Cycas revoluta

Juniperus indica

Musa sp.

Fragaria vesca

Prunus persica

Vinca major

Prunus domestica

Thuja occidentalis

Athyrium niponicum

Carthamus tinctorius

Rhododendron arboreum

Erigeron sumatrensis

Hedera nepalensis

Pseudognaphalium luteoalsum

Nicotina tabacum

Erigeron divageus

Erigeron sumatrensis

Fagopyrum cymoseum

Cupressus lusitanica

Prunus prasica

Rubus ellipticus

Baddleja davidii

Cryptomeria japonica

Malus sylvestris

Pteridium aquilinum

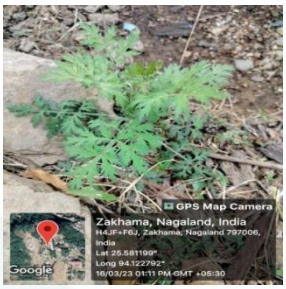
Silene armenia

Thuja standishii

Lactuca virosa

Ageratina adenophora

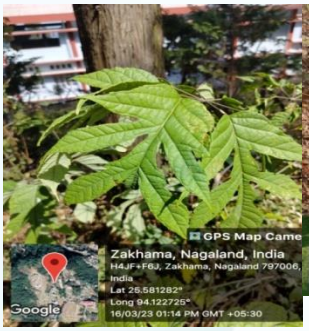
Artemisia princeps



Calopogonium mucunoides

Bambusa vulgaris

Broussonetia papyrifera



Urena lobata

Castilla elastic

Curculigo capitulata

Dryopteris crassirhizoma

Eschscholzia californica

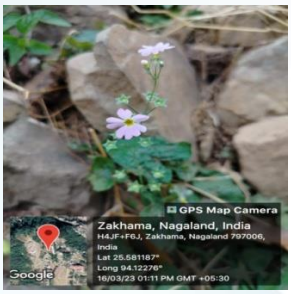
Plantago asiatica

Primula malacoides

Pseudognaphalium affine

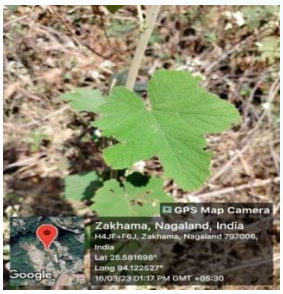
Rubus moluccanus

Smilax zeylanica



Tetraneuris scaposa

Centaurea cyanus

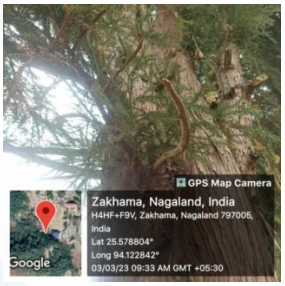


Cryptomeria japonica

Dysolobium pilosum

Indocalamus latifolius

Schizanthus pinnatus



Silene armeria

Nuttallanthus floridanus

Pinus resinosa

Solanum jasminoides

Ageratina adenophora

Prunus avium

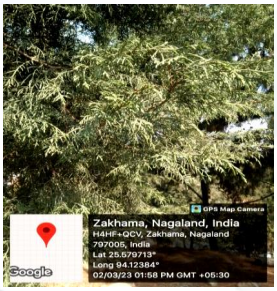
Prunus persica

Cupressus lusitanica

Curculigo orchioides

Cardamine amara L.

Desmodium incanun

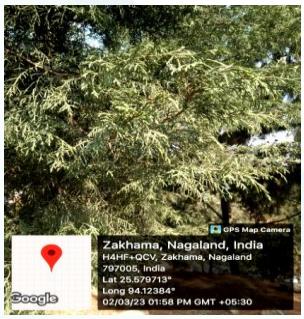


Cupressus lusitanica

Curculigo orchioides

Debregeasia longifolia

Digitaria ischaemum

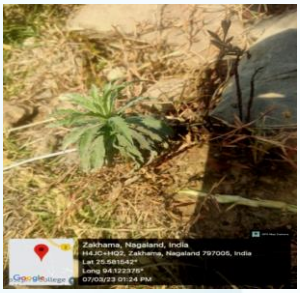


Erigeron annuus (L)

Fagopyrum esculentun

Dracalna sp.

Dysolobium pilosum

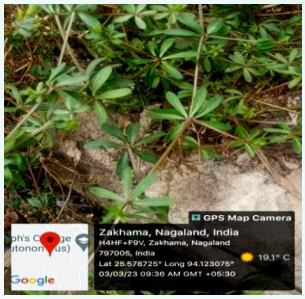


Galium mollugo

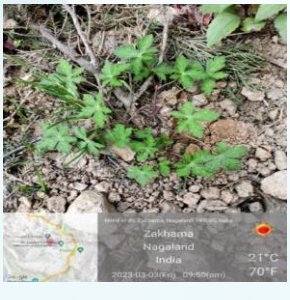
Geranium rotundifolium

Lactuca virosa

Macaranga pustulata



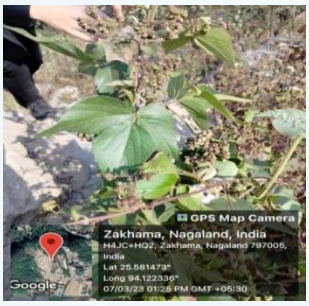
Smilax ovalifolia

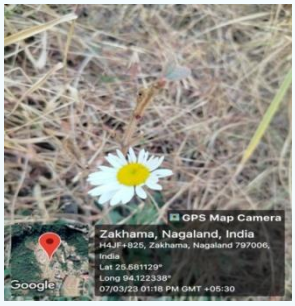


Thuja occidentalis

Urtica dioica ***Phragmites australis*** ***Buddleja davidii*** ***Ludurigia hyssopifolia***

Cosmostigma cordatum ***Bellis perennis*** ***Hisbiscus rosa-sinesis* L.** ***Tagetas patula***





Annexure II: Diversity of Fauna

Sl. No.	Scientific Name	Common Name
	AMPHIBIA	
1	*Rhacophorus helenae*	Helen's tree frog
2	*Polypedates maculatus*	Indian tree frog
3	*Rhacophorus malabaricus*	Malabar flying frog
4	*Litoria ewingii*	Southern brown tree frog
5	*Bufo bufo*	Common toad
	REPTILIA	
6	*Hemidactylus frenatus*	Home lizard
7	*Calotes versicolor*	Oriental garden lizard
8	*Lampropholis guichenoti*	Common garden skink
9	*Daboia russelii*	Russell's viper
	AVES	
10	*Passer domesticus*	House sparrow
11	*Pycnonotus cafer*	Red-vented bulbul
12	*Spelaeornis chocolatinus*	Naga wren-babbler
13	*Phyllergates cucullatus*	Mountain tailorbird
14	*Dromaius novaehollandiae*	Emu
	MAMMALS	
15	*Sciurus carolinensis*	Eastern gray squirrel
16	*Mus musculus*	House mouse
17	*Suncus murinus*	Asian house shrew
18	*Cryptomys hottentotus*	Common mole-rat
19	*Mus musculus*	Albino mice
20	*Oryctolagus cuniculus*	*Rabbit*
	ARACHNIDS	
21	*Heteropoda venatoria*	Huntsman spider
22	*Hogna antelucana*	Wolf spider
23	*Nephila pilipes*	Giant golden Orbweaver
24	*Argiope aemula*	Yellow garden spider
25	*Hogna carolinensis*	Carolina wolf spider
26	*Dysdera crocata*	Woodlouse Spider
27	*Holocnemus pluchei*	Garage spider
28	*Tegenaria domestica*	The barn funnel weaver
29	*Steatoda borealis*	Cow web spider
30	*Trichoephila clavata*	Joro Spider
	INSECTS	
31	*Halyomorpha halys*	Brown marmorated stink bug
32	*Pycanum rubens*	Giant Stink Bug Nymph
33	*Chinavia hilaris*	Green Stink Bug
34	*Tectocoris diophthalmus*	Hibiscus Harlequin Bug
35	*Boisea trivitlata*	Box Elder Bug
36	*Dysdercus cingulatus*	Red Cotton Stainer
37	*Erthesinafullo*	Yellow Spotted Stink Bug
38	*Sehirus cinctus*	White-margined burrower bug
39	*Coccinella septempunctata*	Seven-spot ladybird
40	*Odontolabis cuvera*	Golden stag beetle
41	*Batocera rufomaculata*	Mango Stem Borer
42	*Mimela splendens*	Shining Flower Chafer
43	*Dorcusrectus*	Little Stag Beetle
44	*Cheirotonus formosanus*	Formosan Scarab
45	*Euthalia aconthea*	Common Baron
46	*Papilio protenor*	Spangle
47	*Athyma perius*	Common Sergeant (Caterpillar)
48	*Pantoporia hordonia*	Common lascar
49	*Lethe verma*	StraightBanded TreeBrown Butterfly
50	*Symbrenthia lilaea*	Common *Jester*
51	*Saturnia pyri*	*Giant Peacock Moth*
52	*Lasiocampa quercus*	The *oak eggar* caterpillar
53	*Peribatodes rhomboidaria*	The *willow beauty*

54	*Sphinx ligustri*	Sphinx Moth
55	*Lymantria monacha*	*Black arches or nun moth*
56	*Samia Cynthia*	Ailanthus silkmoth
57	*Abraxas grossulariata*	Magpie Moth
58	*Nyctemera coleta*	Marble white moth
59	*Agathia laetata*	Emerald moth
60	*Sciota fumella*	Snout moth
61	*Syntomoides imaon*	Hand Maiden Moth
62	*Acharia stimula*	Saddle caterpillar
63	*Trabala vishnou*	Rose myrtle lappet moth (Caterpillar)
64	*Spilosoma lutea*	Buff Ermine (Caterpillar)
65	*Actias luna*	Moon Moth
66	*Lyssa zampa*	Tropical Swallowtail Moth
67	*Naxa textilis*	Naxa Moth
68	*Olene mendosa*	Brown Tussock Moth (Caterpillar)
69	*Thalassodes chloropsis*	Emerald Moth
70	*Samia cynthia*	Ailanthus Silk Moth
71	*Krananda semihyalina*	Oriental Moth
72	*Lyssa zampa*	Tropical Swallow Tail Moth
73	*Dendrolimus pini*	Pine Tree Lappet
74	*Calliteara pudibunda*	PaleTussock
75	*Polistes exclamans*	Paper wasp
76	*Apis mellifera*	Honey bee
77	*Apis florea*	*Red Dwarf Honey Bee*
78	*Musca domestica*	Housefly
79	*Drosophila melanogaster*	Fruitfly
80	*Polyrhachis ammon*	Golden Tail Spiny Ant
81	*Lasius niger*	Black garden ant
82	*Oecophylla longinoda*	Weaver ant
83	*Meloimorpha japonica*	Tinkling Ground Cricket
84	*Gryllotalpa gryllotalpa*	European Mole Cricket
85	*Locusta migratoria manilensis*	Oriental *Migratory Locust*
86	*Pseudophyllus titan*	False leaf bush-cricket or katydid
87	*Mecopoda elongata*	Brown Bush Cricket
88	*Oxya fuscovittata*	Oxyair Rice Grasshopper
89	*Neoconocephalus robustus*	Big Brown Katydid
90	*Diapheromera femorata*	Common Walking Stick
91	*Mastigoproctus giganteus*	Giant whip scorpion
92	*Heterometrus loaticus*	Vietnam Forest Scropion
93	*Neotibicen canicularis*	*Dog-day Cicada*
94	*Chrysoperla carnea*	Common green lace wing
95	*Periplaneta fuliginosa*	Smoky Brown cockroach
96	*Blattella germanica*	*German cockroach*
97	*Lycorma delicatula*	*Spotted Lanternfly*
98	*Anax longipes*	Comet Darner Dragonfly

AMPHIBIA

C/Name- Helen's tree frog

S/Name- *Rhacophorus helenae*

C/Name- Indian tree frog

S/Name- *Polypedates maculatus*

C/Name- Malabar flying frog

S/Name- *Rhacophorus malabaricus*

C/Name- Southern brown tree frog

S/Name- *Litoria ewingii*

C/Name- Common toad

S/Name- *Bufo bufo*

REPTILIA

C/Name- Home lizard

S/Name- *Hemidactylus frenatus*

C/Name- Oriental garden lizard

S/Name- *Calotes versicolor*

C/Name- Common garden skink

S/Name- *Lampropholis guichenoti*

C/Name- Russell's viper

S/Name- *Daboia russelii*

AVES

C/Name- House sparrow

S/Name- *Passer domesticus*

C/Name- Red-vented bulbul

S/Name- *Pycnonotus cafer*

C/Name- Naga wren-babbler

S/Name- *Spelaeornis chocolatinus*

C/Name- Mountain tailorbird

S/Name- *Phyllergates cucullatus*

C/Name- Emu

S/Name- *Dromaius novaehollandiae*

MAMMALS/RODENTS

C/Name- Eastern gray squirrel

S/Name- *Sciurus carolinensis*

C/Name- House mouse

S/Name- *Mus musculus*

C/Name- Asian house shrew

S/Name- *Suncus murinus*

C/Name- Common mole-rat

S/Name- *Cryptomys hottentotus*

C/Name- Albino mice

S/Name- *Mus musculus*

C/Name- *Rabbit*

S/Name- *Oryctolagus cuniculus*

ARACHNIDS

C/Name-Huntsman spider

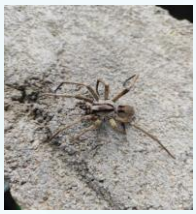
S/Name- *Heteropoda venatoria*

C/Name- Carolina wolf spider

S/Name- *Hogna carolinensis*

C/Name- Wolf spider

S/Name- *Hogna antelucana*



C/Name- Woodlouse Spider

S/Name- *Dysdera crocata*

C/Name- Giant golden Orbweaver

S/Name- *Nephila pilipes*

C/Name- Garage spider

S/Name- *Holocnemus pluchei*

C/Name- Yellow garden spider

S/Name- *Argiope aemula*

C/Name-barn funnel weaver **S/Name-** *Tegenaria domestica*

C/Name- Cow web spider

S/Name- *Steatoda borealis*

C/Name- Joro Spider

S/Name- *Trichoephila clavata*

INSECTS

C/Name- Brown marmorated stink bug

S/Name- *Halyomorpha halys*

C/Name- Giant Stink Bug Nymph

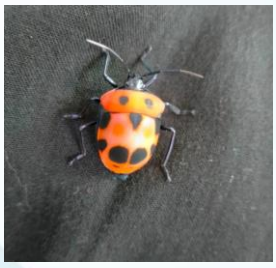
S/Name- *Pycanum rubens*

C/Name- Green Stink Bug

S/Name- *Chinavia hilaris*

C/Name- Hibiscus Harlequin Bug

S/Name- *Tectocoris diophthalmus*



C/Name- Box Elder Bug

S/Name- *Boisea trivitlata*

C/Name- Red Cotton Stainer

S/Name- *Dysdercus cingulatus*

C/Name- Yellow Spotted Stink Bug

S/Name- *Erthesinafullo*

C/Name- White-margined burrower bug

S/Name- *Sehirus cinctus*

C/Name- Seven-spot ladybird

S/Name- *Coccinella septempunctata*

C/Name- Golden stag beetle

S/Name- *Odontolabis cuvera*

C/Name- Mango Stem Borer

S/Name- *Batocera rufomaculata*

C/Name- Shining Flower Chafer

S/Name- *Mimela splendens*

C/Name- Little Stag Beetle

S/Name- *Dorcusrectus*

C/Name- Formosan Scarab

S/Name- *Cheirotonus formosanus*

C/Name- Common Baron

S/Name- *Euthalia aconthea*

C/Name- Spangle

S/Name- *Papilio protenor*

C/Name- Common Sergeant (Caterpillar)

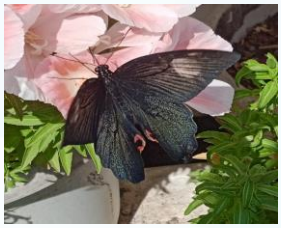
S/Name- *Athyma perius*

C/Name- Common lascar

S/Name- Pantoporia hordonia

C/Name-Straight Banded TreeBrown Butterfly

S/Name- *Lethe verma*



C/Name- Common *Jester*

S/Name- *Symbrenthia lilaea*

C/Name- *Giant Peacock Moth*

S/Name- *Saturnia pyri*

C/Name- The *oak eggar* caterpillar

S/Name- *Lasiocampa quercus*

C/Name- The *willow beauty*

S/Name- *Peribatodes rhomboidaria*

C/Name- Sphinx Moth

S/Name- *Sphinx ligustri*

C/Name- *Black arches* or nun moth

S/Name- Lymantria monacha

C/Name- Ailanthus silkmoth

S/Name- *Samia Cynthia*

C/Name- Magpie Moth

S/Name- *Abraxas grossulariata*

C/Name- Marble white moth

S/Name- *Nyctemera coleta*

C/Name- Emerald moth

S/Name- *Agathia laetata*

C/Name- Snout moth

S/Name- *Sciota fumella*

C/Name- Hand Maiden Moth

S/Name- *Syntomoides imaon*

C/Name- Saddle caterpillar

S/Name- *Acharia stimula*

C/Name- Rose myrtle lappet moth (Caterpillar)

S/Name- *Trabala vishnou*

C/Name- Buff Ermine (Caterpillar)

S/Name- *Spilosoma lutea*

C/Name- Moon Moth

S/Name- *Actias luna*

C/Name- Tropical Swallowtail Moth

S/Name- *Lyssa zampa*

C/Name- Naxa Moth

S/Name- *Naxa textilis*

C/Name- Brown Tussock Moth (Caterpillar)

C/Name- Emerald Moth

C/Name- Ailanthus Silk Moth

S/Name- *Olene mendosa*

S/Name- *Thalassodes chloropsis*

S/Name- *Samia cynthia*

C/Name- Oriental Moth

S/Name- *Krananda semihyalina*

C/Name- Tropical Swallow Tail Moth

S/Name- *Lyssa zampa*

C/Name- Pine Tree Lappet

S/Name- *Dendrolimus pini*

C/Name- PaleTussock

S/Name- *Calliteara pudibunda*

C/Name- Paper wasp

S/Name- *Polistes exclamans*

C/Name- Honey bee

S/Name- *Apis mellifera*

C/Name- *Red Dwarf Honey Bee*

S/Name- Apis florea

C/Name- Housefly

S/Name- *Musca domestica*

C/Name- Fruitfly

S/Name- *drosophila melanogaster*

C/Name- Golden Tail Spiny Ant

S/Name- *Polyrhachis ammon*

C/Name- Black garden ant

S/Name- *Lasius niger*

C/Name- Weaver ant

S/Name- *Oecophylla longinoda*

C/Name- Tinkling Ground Cricket

C/Name- European Mole Cricket

S/Name- *Gryllotalpa gryllotalpa*

C/Name- Oriental *migratory locust*

C/Name- False leaf bush-cricket or katydid

S/Name- *Pseudophyllus titan*

S/Name- *Meloimorpha japonica*

C/Name- Brown Bush Cricket

S/Name- *Mecopoda elongata*

C/Name- Giant whip scorpion

S/Name- *Mastigoproctus giganteus*

C/Name- Smoky Brown cockroach

S/Name- *Periplaneta fuliginosa*

C/Name- Oxyair Rice Grasshopper

S/Name- *Oxya fuscovittata*

C/Name- Vietnam Forest Scropion

S/Name- *Heterometrus loaticus*

C/Name- *German cockroach*

S/Name- *Blattella germanica*

S/Name- *Locusta migratoria manilensis*

C/Name- Big Brown Katydid

S/Name- *Neoconocephalus robustus*

C/Name- *Dog-day Cicada*

S/Name- *Neotibicen canicularis*

C/Name- *Spotted Lanternfly*

S/Name- *Lycorma delicatula*

C/Name- Common Walking Stick

S/Name- *Diapheromera femorata*

C/Name- Common green lace wing

S/Name- *Chrysoperla carnea*

C/Name- Comet Darner Dragonfly

S/Name- *Anax longipes*

Annexure III: List of Energy Consumption

Location 1: Science Building

Sl. No	Electrical Appliances/ instruments	Nos	Power (watt)	Usage per Day (in hrs)	kWh	No of days in a month	Total Consumption Per month (kWh)
1	LED tube light	218	40	6	52.32	20	1046.4
2	LED bulbs	42	10	6	2.52	20	50.4
3	Computer	28	240	2	13.44	12	161.28
4	Laptops	10	60	1	0.6	8	4.8
5	Copier				0		0
6	Oven	1	1200	0.33	0.396	12	4.752
7	AC				0		0
8	UPS	10	240	2	4.8	12	57.6
9	Autoclave	2	120	1	0.24	12	2.88
10	Exhaust fan	8	40	2	0.64	12	7.68
11	Projector	29	200	1	5.8	12	69.6
12	Printers	8	130	1	1.04	12	12.48
13	Refrigerators	2	230	5	2.3	20	46
14	Deepfreeze				0		0
15	Induction cooker	2	1500	1	3	12	36
16	Inverters with no of batteries	5	150	2	1.5	16	24
17	Electric Heaters	1	1000	2	2	12	24
18	Xerox machines	5	220	1	1.1	16	17.6
19	CCTV	16	15	6	1.44	22	31.68
20	Speaker	21	10	0.25	0.0525	22	1.155
21	Electric Burner	1	670	1	0.67	12	8.04
22	Rotary Vacuum	1	1400	1	1.4	12	16.8
						TOTAL	**1623.147**

Location 2: Arts Building (Ground Floor)

Sl. No	Electrical Appliances/ instruments	Nos	Power (watt)	Usage per Day (in hrs)	kWh	No of days in a month	Total Consumption Per month (kWh)
1	LED tube light	61	40	6	14.64	20	292.8
2	LED bulbs	7	9	6	0.378	20	7.56
3	Computer	16	50	3	2.4	12	28.8
4	Laptops	6	60	2	0.72	12	8.64
5	Copier	1	800	1	0.8	10	8
6	Oven				0		0
7	AC				0		0
8	UPS	16	360	3	17.28	20	345.6
9	Smart Interactive Display Board	1	40	1	0.04	6	0.24
10	Projector	3	100	1	0.3	12	3.6
11	Printers	13	40	1	0.52	12	6.24
12	Refrigerators				0		0
13	Inverters with no of batteries	1	2500	2	5	16	80
14	Electric Heaters	2	200	2	0.8	12	9.6
15	Xerox machines	2	500	1	1	16	16
16	CCTV	12	40	6	2.88	22	63.36
17	CCTV monitor	1	10	6	0.06	20	1.2
18	Speaker	6	10	0.17	0.0102	20	0.204
19	WIFI	5	10	6	0.3	20	6
20	Electric bell	1	345	0.33	0.11385	20	2.277
21	Server	1	118	6	0.708	20	14.16
22	Water boiler	2	750	2	3	20	60

						TOTAL	**954.281**

Location 2: Arts Building (1st Floor)

Sl .No	Electrical Appliances/ instruments	Nos	Power (watt)	Usage per Day (in hrs)	kWh	No of days in a month	Total Consumption Per month (kWh)
1	LED tube light	34	40	6	8.16	20	163.2
2	LED bulbs	1	10	6	0.06	20	1.2
3	Computer	4	240	6	5.76	12	69.12
4	Laptops				0		0
5	Copier				0		0
6	Oven	1	1200	1	1.2	8	9.6
7	AC				0		0
8	UPS	3	240	2	1.44	12	17.28
9	Projector	6	24	3	0.432	12	5.184
10	Printers				0		0
11	Refrigerators	1	230	6	1.38	20	27.6
12	Inverters with no of batteries	2	150	6	1.8	16	28.8
13	Electric Heaters				0		0
14	Xerox machines	4	230	1	0.92	12	11.04
15	CPU	3	230	2	1.38	12	16.56
16	CCTV	8	5	10	0.4	20	8
17	Water boiler	1	670	2	1.34	20	26.8
18	WIFI	10	20	7	1.4	20	28
19	Speaker	8	150	0.25	0.3	20	6
20	Bulb	11	60	6	3.96	10	39.6
						TOTAL	**457.984**

Location 2: Arts Building (2nd Floor)

Sl .No	Electrical Appliances/ instruments	Nos	Power (watt)	Usage per Day (in hrs)	kWh	No of days in a month	Total Consumption Per month (kWh)
1	LED tube light	11	18	6	1.188	20	23.76
2	LED bulbs	8	15	6	0.72	20	14.4
3	Computer	74	84	2	12.432	8	99.456
4	Laptops	31	60	2	3.72	8	29.76
6	Water filter	1	500	6	3	16	48
8	UPS	74	360	2	53.28	8	426.24
9	Exhaust fan	2	40	4	0.32	12	3.84
10	Smart Interactive Display Board	1	150	1	0.15	8	1.2
11	Projector	7	282	1	1.974	16	31.584
12	Printers	4	12	1	0.048	12	0.576
13	Coffee machine	1	180	1	0.18	20	3.6
14	LED tube light (small)	1	5	6	0.03	16	0.48
15	Tube light (small)	2	20	6	0.24	12	2.88
16	Television	1	45	1	0.045	8	0.36
17	Inverters with no of batteries	23	900	2	41.4	10	414
18	Electric Heaters	1	1000	1	1	12	12
19	Bulbs				0		0
20	WIFI	3	15	6	0.27	20	5.4
21	Speaker	11	10	0.25	0.0275	20	0.55

22	Tube light	27	36	6	5.832	8	46.656
23	CCTV	8	15	10	1.2	20	24
24	Electric bell	2	100	0.33	0.066	20	1.32
25	Water boiler	5	1500	1	7.5	12	90
26	Server	5	118	1	0.59	20	11.8
						TOTAL	1291.862

Location 2: Arts Building (3rd Floor)

Sl .No	Electrical Appliances/ instruments	Nos	Power (watt)	Usage per Day (in hrs)	kWh	No of days in a month	Total Consumption Per month (kWh)
1	LED tube light	8	40	6	1.92	20	38.4
2	LED bulbs	11	7	6	0.462	20	9.24
3	Computer	3	240	6	4.32	12	51.84
4	UPS	3	360	6	6.48	12	77.76
5	Smart Interactive Display Board	1	50	1	0.05	8	0.4
6	Projector	6	24	3	0.432	12	5.184
7	Printers	3	50	1	0.15	12	1.8
8	Microphones	15	15	3	0.675	16	10.8
9	WIFI	2	20	6	0.24	20	4.8
10	CPU	1	70	6	0.42	12	5.04
11	Electric Heaters	2	1000	2	4	12	48
12	Tubelight	48	30	6	8.64	16	138.24
13	Speaker	12	150	0.25	0.45	20	9
14	Battery	3	500	3	4.5	8	36
15	CCTV	6	10	10	0.6	20	12
16	Inverter	1	240	4	0.96	18	17.28
17	Boiler	1	240	1	0.24	16	3.84
18	Water purifier	1	25	1	0.025	20	0.5

						TOTAL	**470.124**

Location 2: Dispensary + Bookstall + Classrooms

Sl .No	Electrical Appliances/ instruments	Nos	Power (watt)	Usage per Day (in hrs)	kWh	No of days in a month	Total Consumption Per month (kWh)
1	LED tube light	10	40	6	2.4	20	48
2	LED bulbs	3	5	6	0.09	20	1.8
3	Computer	1	230	2	0.46	20	9.2
4	Copier	2	240	2	0.96	20	19.2
5	UPS	1	360	3	1.08	20	21.6
6	Projector	2	550	2	2.2	8	17.6
7	Electric Heaters	1	1100	3	3.3	8	26.4
8	Ceiling fans	8	75	1	0.6	4	2.4
9	Electric boiler	1	230	2	0.46	12	5.52
						TOTAL	**151.72**

Location 2: Classrooms below Basketball Court

Sl .No	Electrical Appliances/ instruments	Nos	Power (watt)	Usage per Day (in hrs)	kWh	No of days in a month	Total Consumption Per month (kWh)
1	LED tube light	12	36	6	2.592	20	51.84
2	projector	3	300	2	1.8	6	10.8
3	Electric bells	3	100	0.1	0.03	20	0.6
4	Fans	12	50	1	0.6	4	2.4
						TOTAL	**65.64**

Location 3: College Canteen

Sl .No	Electrical Appliances/ instruments	Nos	Power (watt)	Usage per Day (in hrs)	kWh	No of days in a month	Total Consumption Per month (kWh)
1	LEDtube light	7	6	4	0.168	20	3.36
2	Refrigerators	1	260	6	1.56	22	34.32
3	Boiler	3	1800	6	32.4	20	648
4	Charger	1	18	4	0.072	20	1.44
5	CCTV	2	50	6	0.6	20	12
6	Coffee machine	4	4000	0.3	4.8	20	96
						TOTAL	**795.12**

Location 4: Carpentry and Wielding Units

Sl .No	Electrical Appliances/ instruments	Nos	Power (watt)	Usage per Day (in hrs)	kWh	No of days in a month	Total Consumption Per month (kWh)
1	LED tube light	5	6	4	0.12	12	1.44
2	LED bulbs	2	9	2	0.036	12	0.432
3	exhaust fan	1	90	2	0.18	12	2.16
4	Welding Device	2	1300	2	5.2	8	41.6
5	Drilling machine	3	1300	2	7.8	8	62.4
6	Grinding machine	3	600	2	3.6	8	28.8
7	Circular saw	1	1400	2	2.8	8	22.4
8	Polisher	1	990	2	1.98	8	15.84
9	Planer machine	2	710	2	2.84	8	22.72
10	Table saw	1	3500	2	7	8	56
11	Cut off machine	1	2000	2	4	8	32
						TOTAL	**285.792**

Location 5: Staff Quarter -1 (Near Science Block)

Sl .No	Electrical Appliances/ instruments	Nos	Power (watt)	Usage per Day (in hrs)	kWh	No of days in a month	Total Consumption Per month (kWh)
1	LED tube light	18	40	8	5.76	30	172.8
2	LED bulbs	22	10	8	1.76	15	26.4
3	Water Boiler	3	220	1	0.66	30	19.8
4	Electric Mixer Grinder	1	750	0.25	0.1875	4	0.75
5	Water Dispenser	4	750	2	6	8	48
6	Electric Airpod	1	750	1	0.75	16	12
7	Refrigerators	3	189	5	2.835	30	85.05
8	Induction cooker	5	1700	2	17	20	340
9	Electric Heater	5	1000	2	10	8	80
10	Immersion Water heater	1	1000	1	1	8	8
11	Rice Cooker	2	1400	2	5.6	22	123.2
12	Water Bag	1	360	1	0.36	8	2.88
13	Mini Fan	1	3.5	1	0.0035	4	0.014
14	Water Heater	5	1000	1	5	8	40
15	Steam Iron	1	1200	0.25	0.3	4	1.2
16	Lamp	1	7.8	1	0.0078	8	0.0624
17	Emersion Rod	1	1500	1	1.5	4	6
						TOTAL	**1291.924**

Location 5: Staff Quarter-2 (Near Science Block)

Sl .No	Electrical Appliances/ instruments	Nos	Power (watt)	Usage per Day (in hrs)	kWh	No of days in a month	Total Consumption Per month (kWh)
1	LED tube light	8	36	8	2.304	30	69.12
2	LED bulbs	13	5	8	0.52	15	7.8
3	Laptops	3	19.5	1	0.0585	16	0.936
4	Printers	1	40	1	0.04	16	0.64
5	Electric Heaters	3	1100	2	6.6	8	52.8
6	Florescent	1	220	2	0.44	15	6.6
7	Water heater	2	220	1	0.44	12	5.28
8	Bulbs	2	60	8	0.96	15	14.4
						TOTAL	**157.576**

Location 6: Quarters behind the Indoor Stadium

Sl .No	Electrical Appliances/ instruments	Nos	Power (watt)	Usage per Day (in hrs)	kWh	No of days in a month	Total Consumption Per month (kWh)
1	LED tube light	4	32	8	1.024	30	30.72
2	LED bulbs	10	5	8	0.4	30	12
3	Television	2	150	3	0.9	20	18
4	Electric Heaters	4	1100	2	8.8	10	88
5	Water Boiler	3	230	3	2.07	20	41.4
6	Electric cooker	3	700	1	2.1	30	63
						TOTAL	**253.12**

Location 7: SJC Men's Hostel

Sl. No	Electrical Appliances/ instruments	Nos	Power (watt)	Usage per Day (in hrs)	kWh	No of days in a month	Total Consumption Per month (kWh)
1	LED tube light	50	22	4	4.4	24	**105.6**
2	LED bulbs	210	9	4	7.56	24	**181.4**
3	Computer	5	220	1	1.1	15	**15**
4	Laptops	10	50	5	2.5	15	**37.5**
5	Copier	1	650	0.5	0.32	10	**3.2**
6	UPS	6	1000	4	24	10	**240**
7	Autoclave	1	18000	1	18	10	**180**
8	Printers	4	60	0.5	0.12	10	**1.2**
9	Deep freezer	1	1000	20	20	24	**480**
10	Inverters with no. of batteries	4	250	20	20	10	**200**
11	Electric Heaters	2	1500	1	3	15	**45**
12	Xerox machines	1	5000	0.5	2.5	10	**25**
						TOTAL	**1513.9**

Location 8: CMC Girls's Hostel

Sl. No	Electrical Appliances/ instruments	Nos	Power (watt)	Usage per Day (in hrs)	kWh	No of days in a month	Total Consumption Per month (kWh)
1	LED bulbs	2	8	2	0.032	24	**0.768**
2	Computer	3	60	0.5	0.09	10	**0.9**
3	Laptops	4	50	1	0.2	10	**2**
4	UPS	3	360	4	4.32	10	**43.2**
5	Printers	1	40	0.5	0.02	10	**0.2**
6	Refrigerators	1	210	20	4.2	24	**100.8**
7	Deep freezer	1	750	20	15	24	**360**
8	Television	1	58.6	1	0.586	10	**5.86**
9	Invertors with no of batteries	1	250	20	5	10	**50**
10	Ordinary Tubelight	68	40	4	10.88	24	**261.12**
11	Ordinary Bulb	18	60	4	4.32	24	**103.68**
12	Speaker	6	100	0.5	0.30	10	**3**
13	CCTV	1	40	20	0.80	24	**19.2**
14	Water Purifier	2	25	12	0.6	24	**14.4**

15	Water Boiler	1	700	4	2.8	10	**28**
16	Geyser	1	2000	16	32	10	**320**
						TOTAL	**1313.128**

Location 9: Ave Maria Girl's Hostel

Sl. No	Electrical Appliances/ instruments	Nos	Power (watt)	Usage per Day (in hrs)	kWh	No of days in a month	Total Consumption Per month (kWh)
1	LED Tube lights	42	17	4	2.856	24	**68.544**
2	LED Bulbs	20	8	4	0.64	24	**15.36**
3	Computer	2	60	1	0.12	10	**1.2**
4	Printers	1	40	1	0.04	10	**0.4**
5	Deep freezer	1	700	20	14	24	**336**
6	Television	1	170	1	0.17	10	**1.7**
7	Invertors with no of batteries	2	240	20	9.6	10	**96**
8	Electric Heaters	1	400	1	0.4	10	**4**
9	Washing Machines	1	1460	1	1.46	15	**21.9**
10	Speaker	3	100	0.5	0.15	10	**1.5**
11	CCTV	13	40	20	10.4	24	**249.6**
12	Water Heater	1	900	1	0.9	15	**13.5**
						TOTAL	**809.704**

Location 10: SJC Girl's Hostel

Sl .No	Electrical Appliances/ instruments	Nos	Power (watt)	Usage per Day (in hrs)	kWh	No of days in a month	Total Consumption Per month (kWh)
1	LED Tube light	4	20	4	0.32	24	**7.68**
2	LED bulbs	4	7	4	0.112	24	**2.688**
3	Computer	5	60	1	0.3	10	**3**
4	Laptops	3	50	2	0.30	10	**3**
5	UPS	2	360	4	2.88	10	**28.8**
6	Projector	1	260	0.5	0.13	10	**1.3**
7	Printers	1	40	0.5	0.02	10	**0.2**
8	Deep freezer	1	1000	20	20	24	**480**
9	Induction Cooker	1	2000	2	4	15	**60**
10	Television	1	170	1	0.17	10	**1.7**
11	Invertors with no of batteries	1	240	20	4.8	10	**48**
12	Electric Heaters	3	1200	1	3.6	10	**36**
13	Water Purifier	1	20	4	0.08	15	**1.2**
14	Washing	1	1460	1	1.46	20	**29.2**

	Machine						
15	Geyser	3	2000	16	96	15	**1440**
16	Water Heater	3	900	1	2.7	10	**27**
17	Water Boiler	1	2000	1	2	10	**20**
18	Ordinary Tube	18	40	4	2.88	10	**28.8**
19	CFL Bulb	39	18	4	2.8	24	**67.2**
						TOTAL	**2285.768**

Location 11: Adoration Girl's Hostel

Sl .No	Electrical Appliances/ instruments	Nos	Power (watt)	Usage per Day (in hrs)	kWh	No of days in a month	Total Consumption Per month (kWh)
1	LED Tube light	8	20	4	0.64	24	**15.36**
2	LED bulbs	19	8	4	0.608	24	**16.32**
3	Computer	1	60	1	0.06	10	**0.6**
4	Laptops	1	50	1	0.05	10	**0.5**
5	UPS	1	360	4	1.44	10	**14.4**
6	Printers	1	40	0.5	0.02	10	**0.2**
7	Refrigerators	1	210	20	4.2	24	**100.8**
8	Deep freezer	1	750	10	15	24	**360**
9	Induction Cooker	1	2000	2	4	15	**60**
10	Television	1	170	1	0.17	10	**1.7**
11	Invertors with no of batteries	1	250	20	5	10	**50**
12	Electric Heaters	3	1200	1	3.6	10	**36**
13	Water Purifier	1	20	1	0.02	15	**0.3**
14	Geyser	2	2000	4	16	15	**240**
15	Water Heater	1	900	1	0.9	10	**9**
16	Water Boiler	1	2000	1	2	10	**20**
17	Ordinary Tube	22	40	4	3.52	10	**35.2**
18	CFL Bulbs	18	20	4	1.44	24	**34.56**
						TOTAL	**994.94**

Location 12: Auditorium and Indoor Stadium

Sl. No	Electrical Appliances/ instruments	Nos	Power (watt)	Usage per Day (in hrs)	kWh	No of days in a month	Total Consumption Per month (kWh)
1	LED Tube light	26	468	2	24.33	5	**121**
2	LED bulbs	35	350	4	49	20	**980**
3	Exhaust Fan	20	800	1	16	1	**16**
4	Projector	1	290	2	0.58	5	**3**
5	Amplifier	1	100	2	0.2	5	**1**

6	Speaker	15	4500	2	135	5	**675**
						TOTAL	**1796**

Location 13: PG Block

Sl. No	Electrical Appliances/ instruments	Nos	Power (watt)	Usage per Day (in hrs)	kWh	No of days in a month	Total Consumption Per month (kWh)
1	LED Tube light	160	18	4	11.52	24	**276.48**
2	LED bulbs	25	7	4	0.70	24	**16.80**
3	Computer	10	70	1	0.7	10	**7**
4	Laptops	20	80	2	3.20	10	**32**
5	UPS	10	600	4	24	10	**24**
6	Exhaust Fan	4	40	1	0.16	10	**1.6**
7	Smart Interactive Display Board	1	150	1	0.15	15	**2.25**
8	Projectors	12	10	1	0.12	20	**2.4**
9	Printers	4	50	0.5	0.1	10	**1**
10	Television	2	58.6	1	0.117	10	**1.17**
11	Invertors with no of batteries	4	250	20	20	10	**200**
12	Electric Heaters	5	900	1	4.5	10	**45**
13	Xerox Machines	1	60	0.5	0.03	10	**0.3**
14	Speaker	25	100	0.5	1.25	15	**18.75**
15	CCTV	12	40	20	9.6	24	**230.4**
16	Water Purifier	3	25	1	0.075	15	**1.125**
17	Water Boiler	2	1500	1	3	10	**30**
18	Coffee Machine	1	800	2	1.6	24	**38.4**
						TOTAL	**928.675**

Location 14: Staff Quarter (outside the campus)

Sl. No	Electrical Appliances/ instruments	Nos	Power (watt)	Usage per Day (in hrs)	kWh	No of days in a month	Total Consumption Per month (kWh)
1	LED bulbs	38	8	4	1.21	24	**29.04**
2	Tube light	83	17	4	5.644	24	**135.456**
3	Printers	1	40	0.5	0.02	10	**0.2**
4	Refrigerators	3	250	20	15	24	**360**
5	Television	3	170	1	0.51	10	**5.1**
6	Induction Cooker	2	2000	1	4	15	**60**
7	Photocopier	1	5000	0.5	2.50	10	**25**
8	Electric Air pot	15	750	1	11.25	15	**168.75**
9	Heater	9	800	0.5	3.60	15	**54**
10	Geyser	18	2000	1	36	10	**360**
						TOTAL	**1197.54**

Annexure IV: List of E-Waste Collected

St. Joseph's College (Autonomous), Jakhama
E- WASTE CLUB
Collection Drive

The E-Waste club, SJC (A), Jakhama, with the aim of e-waste free environment carried out door to door collection drive at CMC Women's Hostel, Art's Block and Men's Hostel. The E-Waste club conducted the collection drive on the 12th of February, and 7th and 9th of March, 2023. Some of the e-wastes collected were earpiece, desktop, laptop charger, wires etc.

Given below is the list of e-waste collected from the college and the campus:

IT AND TELECOM	CONSUMER ELECTRONICS	INDUSTRIAL ELECTRONICS	MEDICAL EQUIPMENTS
CRT Monitor	TV (CRT 21 inches)	Current Transformer	Sterilizer machine
Flat Screen Monitor	TV (Flat Screen 26 inch)	Dosing Pump	Medical balance
CPU	Split AC	function generator	Centrifuged machine
Laptop	Table Fan	Heat Gun	X Ray machine
Motherboard	Toaster	Hydra Machine	Portable X ray machine
Laptop battery	VCR	Hydrologic Trolley	Pulse oxy meter monitor
Laptop Charger	Washing Machine	Main Switch Extra	Bedside monitor

	Front Load/Top Load	Large	
CD/DVD Rom Drive	Video Conferencing device	Main Switch Large	X ray view box
Compact Server	Video Recorder/DVD Player/Tape recorder	Main Switch Medium	Calling box
Control Panel	Wall Clock	Main Switch Small	BP testing device
CPU Fans	Entertainment Equipment (Tandberg Data)	Motor Pump	Analyzer
Data Switch	Water Filter	pressure gauge	Submersible pump
Dish TV Satellite	Water Heating Jug	Rotor	
DVR	Wires	Scrubbing Machine	
DVR Switch	Woofer	UPS Extra Large	
EpabX Console	CCTV Camera	UPS Extra Large	
EpabX Machine	CCTV Rotinal base	Voltage Meter	
Extension Cord	CFL Bulb	Automotive battery	
Fire Panel	Copper Chokes	Walky Talky	
Floppy Drive	Cross Trainer	Kymograph Machine	
Graphics Card	Electric Heater	submersible pump	
Hard Disk	Electric Kettles	Colorimeter	
Headphones	Fan	MS Scrap	
Keyboard	Inverter battery	Signal Generator	
KOT Printer	Fire Alarm	Voltmeter	
KVM/Ethernet Switch	Grinder	Voltmeter	
LAN Cable	Gym Cycle	Electric Motor	
PCB	Halogen Frame	Stabilizer	
Phone	Hand Blender	Change Over	
POS	Hand Mixer		
LCD Flat Screen	Hot Air Oven		

Power Bank	Induction Cooker		
Power Cord Battery	Iron		
Power Supply	Lamp Frame		
RAM	Lamps		
Smart Phone	LED Bulb		
SMPS (Power Supply)	LED Fitting		
Speaker	Light Board		
Tablet	microwave oven		
Telephone	Mini Bar		
Deskjet Printer/Fax	Mobile Phone Charger		
Dot Matrix Printer	Music Player		
LaserJet Printer / Scanner	Music System		
Multi-Functional Printer	OTG		

Paper Shredder	Pencil Battery		
Photostat Machine/Xerox Machine	Radio		
Postal Franking Machine	Radio/Transistor		
Over Head Projector	Refrigerator Any Door		
Router/Modem/LAN	Room Heater		
scanner(Finger)	Roti Maker		
Scanner jet	Set Top Box		
Security Camera	Speakers		
Typewriter	Capacitor		

USB Drive	Card Scanning Machine		
Ving Card	Treadmill		
Spike Buster	Ceiling Fan		
Telephone wires	Chandelier		
Bar Code Printer	Compressor		
Currency Counting Machine	Emergency Light		
Fake Currency Detector	Entertainment Equipment		
Managed Switch	Exhaust fan		
Network Switch2	Generator		
Network switch3	Halogen		
Networking Rack	Inverter Big		
Adaptor	Power Cable		
Calculator	Small Domestic Appliance		
Cartridge	Standing Fan		
Server Rack (Medium)	Vacuum Cleaner		
Stamp Machine	Water Heater/Geyser		
UPS Medium	Water Purification		
All in one printer	Weighing Scale		
Bill Printer	Aluminum cables		
	LED Fitting(3)		
	Microscope		
	Ballast		
	Coffee Machine		

	Air Purifier		
	Ballast(Tube light)		
	Blade Server		
	Blower		
	Camera		

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ST. JOSEPH'S COLLEGE

JAKHAMA

P.B. No. 39, Kohima, Nagaland – 797 001

(Autonomous status granted by UGC notification No.F.22-1(AC) Dtd.11th Oct.2018)

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NAAC Grade A (CGPA: 3.12)

Date: 15/09/2023

GREEN AUDIT - SJC (A)

The following details are prepared based on the Questionnaire received from Nagaland Pollution Control Board, Government of Nagaland, Nagaland, for the purpose of Green Audit of St. Joseph's College (Autonomous), Jakhama, Nagaland.

INFRASTRUCTURE ASSESSMENT

1. **Total area of the university/college**: 26.9 Acres
2. **Area developed within the campus**: 4.63 Acres/ 6.36 Acres (appro)
3. **Area of various blocks/offices**:
   i. Main Building (Arts Block) = 66, 940 sq.ft
   ii. St. Pope Francis Science Block = 67,330 sq.ft
   iii. PG and Research Block = 51,520 sq.ft
4. **Total strength of the university/college**: 4190
5. **Total no. of faculty (teaching and non-teaching):** 132
6. **Total no. of students:** 4058
7. **Academic degree offered**: i. Undergraduate Course: BA, BBA, B. Com, B.Sc (13 Departments) and Post Graduate Course: MA (5 Departments)
8. **No. of computers**: 222
9. **No. of hostels**: 5 Hostels (1 Boy's Hostel and 4 Girls Hostel)
10. **No. of students accommodated in the hostel**: 701
11. **Area and no. of residential quarters**:

The college has 5 staff quarters and 1 new staff quarter is in the process of construction

12. **Health care facility in the campus**:

The college has 1 Dispensary in the Arts Block and 1 Infirmary in PG Block

13. **No. of canteens**:

The college maintains 3 canteens -1 in Arts Block, 1 in Science Block and 1 in PG Block

4. **Public means of transport within the university area:**

The college buses are utilised for travel of staff and students from Kohima to Jakhama, and are there are 5 motor vehicles and 1 two-wheeler of the college.

15. **Banks/post offices located1 within the campus:**

The college does not have any banks or post office located within the campus. However, for financial accessibility of the students and the staff, the college have two ATM booths of which one is with CDM facility.

16. **Library in the campus:**

The College has one main library in the Arts Block and 1 library in the PG Block

GREEN COVER AND NATURE CONSERVATION

1. **Is there a garden in your college?**
   Yes, the college maintains gardens, where flowers, fruits and vegetables are tended. Mention of the gardens in the college is as follows:
   i. Herbal Heritage cum Botanical Garden
   ii. Oasis of Nature
   iii. SJC Men's Hostel Garden
   iv. Ave Maria Girls Hostel Garden
   v. CMC Girls Hostel Garden
   vi. Adoration Women's Hostel Garden
   vii. Orchards
   viii. Adam Smith's Farm

2. **Is there concept-based garden (star plants, medicinal plants, endemic species, agriculture, etc.), specify area for each.**

There are concept-based gardens where medicinal and vegetable gardens are planted together in the PG Block. Ornamental plants are grown in science block, besides the chapel and Arts Block gardens. Plants such as Cycas are found in Arts Block entrance and Father's residence. Lush pines are grown along the footpath towards indoor stadium and trees are grown around the boundary of the campus. Apple and Kiwi orchards is maintained on the way to PG Block and a garden based on agricultural activities is also maintained. Spring Cherry Blossom trees are planted in-front of PG Block, and near to football ground. Ornamental plants (evergreen trees) are planted on the road side from Science Block to basketball ground. Ornamental plants (evergreen) trees are planted along the football ground.

3. Do students spend time in the garden? If so, mention the approximate time and purpose.

Students of Department of Botany spent time in the botanical garden as per the syllabus requirement. Paper such as nursery and gardening mandates the student to be in the garden for about 2 hours in a week. One of the main purpose for activities in the garden is to educate the students on the techniques required to grow plants, the valuable medicinal properties a plant contains, therefore the morphological features are studied to differentiate and for identification process

For the Department of Economics (PG), students as part of their paper on **Economics of Agriculture (Paper Code MECC 3.1**), they are allowed to visit the Adam Smith Farm once a week for at least two hours (last two periods). Some of the crops that are grown on the farm include beans, tomatoes, lettuce, chilli, onion, and bitter gourd. Such practices aid the students to gain valuable hands-on experience in agricultural practices, the economic importance of agriculture. Overall, the farm provides a valuable learning resource for the Economics of Agriculture course. The farm is expected to continue to grow in the future, providing even more opportunities for students to learn and contribute to the community.

4. List of campus flora (attach a list of plants with details, including scientific name, family, approximate number of plants, etc.) in your campus.

Sl.no	Scientific name	Family	No. of species
1.	***Phoenix roebelenii*** ***Chamaerops humilis*** ***Caryota mitis***	Arecaceae	3
2.	***Cycas revoluta***	Cycadaceae	1
3.	***Tropaeolum majus***	Tropaeolaceae	1
4.	***Plantago sp***	Plantaginaceae	1
5.	***Passiflora edulis***	Passifloraceae	1
6.	***Primula matthioli***	Primulaceae	1
7.	***Quercus acutissima***	Fagaceae	1
8.	***Phyllanthus tenellus***	Phyllanthaceae	1
9.	***Schefflera sp*** ***Hedera helix*** ***Hedera nepalensis***	Araliaceae	3
10.	***Grevilea robusta***	Proteaceae	1
11.	***Persea americana***	Lauraceae	1
12.	***Aloe vera***	Asphodelaceae	1
13.	***Cryptomeria japonica*** ***Juniperus occidentalis*** ***Thuja arbovitae***	Cupressaceae	3
14.	***Alliun ascalonicum***	Liliaceae	1

15.	***Debregeasia longifolia***	Urticaceae	1
16.	***Desmodium incanum*** ***Vicia lathyroides*** ***Bauhinia nahlu*** ***Mucuna prureins*** ***Dalbergia ecastaphyllum*** ***Dysolobium pilosum*** ***Bauhinia variegata***	Leguminoseae	7
17.	***Selaginella kraussiana***	Selaginellaceae	1
18.	***Woodsia sp***	Woodsiaceae	1
19.	***Athyrium filix-femina*** ***Athyrium niponicum***	Dryopteridaceae	2
20.	***Azadirachta indica***	Meliaceae	1
21.	***Dracaena sp***	Dracaenceae	1
22.	***Zamia integrifolia***	Zamiaceae	1
23.	***Gallium molugo***	Rubiaceae	1
24.	***Bouganvillea spectabilis***	Nytaginaceae	1
25.	***Aglaomorpha sp*** ***Aglaomorpha fortunei***	Polypodiaceae	2
26.	***Smilax officinalis*** ***Smilax ovaliforia***	Smilacaceae	2
27.	***Thalictrum foliolosum*** ***Clematis vitalba***	Ranunculaceae	2
28.	***Geranium rotundifolium***	Geraniaceae	1
29.	***Chenopodium giganteum***	Amaranthaceae	1
30.	***Rumex confertus*** ***Fagopyrum cymosum*** ***Polygonum chinensis*** ***Rumex dentatus***	Polygonaceae	4
31.	***Schizanthus pinnatus*** ***Coelogyne mossiae*** ***Dendrochilum sp***	Orchidaceae	3
32.	***Alnus spaethii*** ***Alnus nepalensis***	Betulaceae	2
33.	***Thuja occidentalis*** ***Cupressus lusitanica***	Cupressaceae	2
34.	***Pinus resinosa*** ***Cedrus deodora***	Pinaceae	2
35.	***Silene armeria*** ***Drymaria cordata*** ***Sagina saginoides*** ***Atocion armeria***	Caryophyllaceae	4
36.	***Solanum jasminoides*** ***Solanum tuberosum*** ***Solanum lycopersicum***	Solanaceae	4

	Solanum lycopersicum var, cerasiforme		
37.	***Vinca major***	Apocynaceae	1
38.	***Duranta sp*** ***Lantana camara***	Verbenaceae	2
39.	***Nuttalanthus floridanus*** ***Buddleja davidii***	Scrophulariaceae	2
40.	***Dennstaedtia punctilobula*** ***Pteridium aquilinum***	Dennstaedtiaceae	2
41.	***Rosa chinensis*** ***Prunus domestica*** ***Prunus avium*** ***Prunus persica*** ***Rubus ellipticus*** ***Rubus sp*** ***Rosa sp*** ***Fragaria vesca*** ***Spiraea vanhouttei*** ***Malus sylvestris*** ***Kerria japonica*** ***Potentilla hebiighigo*** ***Rubus idaeus*** ***Prunus serstina***	Rosaceae	14
42.	***Mangifera indica***	Anacardiaceae	1
43.	***Fraxinus excelsior***	Oleaceae	1
44.	***Macaranga pustulata*** ***Ricinus communis***	Euphorbiaceae	2
45.	***Malvastrum coromandelianum*** ***Hibiscus rosa-sinensis*** ***Adansonia digitata***	Malvaceae	3
46.	***Rhododendrum arboretum*** ***Rhododendrum laponicum***	Ericaceae	2
47.	***Eragrostis amabilis*** ***Polypogon monspeliensis*** ***Eleusine indica*** ***Lepturus repens*** ***Digitaria sp*** ***Digitaria ischaemum*** ***Rottboellia sp*** ***Phragmites auatralis*** ***Setaria palmifolia***	Poaceae	9
48.	***Citrus sinensis*** ***Citrus limon*** ***Citrus cavaleriei***	Rutaceae	4

	Zanthoxylum aromaticum		
49.	***Myrrhis odorata*** ***Oenanthe javanica*** ***Centella Asiatica***	Apiaceae	3
50.	***Musa sp***	Musaceae	1
51.	***Araucaria heterophylla***	Araucariaceae	1
52.	***Cyperus rotundus***	Cyperaceae	1
53.	***Canna indica***	Cannaceae	1
54.	***Laggera crispate*** ***Sonchus oleraceus*** ***Tagetes patula*** ***Bidens pilosa*** ***Pseudognaphalium affine*** ***Erigeron divergens*** ***Eupatorium adenophorum*** ***Artemisia princeps*** ***Vernonia gigantean*** ***Bellis perennis*** ***Alstroemeria sp*** ***Taraxacum officinale*** ***Blumea densiflora*** ***Calendula officinalis*** ***Galinsoga parviflora*** ***Erigeron sumatrensis*** ***Lactuca virosa*** ***Argyranthemum frutescens*** ***Euryops pectinatus*** ***Cirsium muticum*** ***Centaurea cyanus*** ***Glebionis coronaria*** ***Gynura bicolor***	Asteraceae	23
55.	***Panda oleosa***	Pandaceae	1
56.	***Sechium edule***	Cucurbitaceae	1
57.	***Leucosceptrum canum*** ***Clinopodium nepeta***	Lamiaceae	2
58.	***Callistemon citrinus***	Myrtaceae	1
59.	***Oenothera rosea*** ***Ludwigia hyssopifolia***	Onagraceae	2
60.	***Punica granatum***	Punicaceae	1
61.	***Brassica campestris***	Brassicaceae	1
62.	***Curculigo sp***	Amaryllidaceae	1

Total number of families: 62
Total number of species: 152
Family with the highest number of plant species: Asteraceae with 23 species.

5. Name and number of the medicinal plants in your college campus.

Sl.No	Scientific name
1	***Catharanthus roseus***
2	***Mimosa pudica***
3	***Polygonum moll***
4	***Allium sativum***
5	***Mentha spicata***
6	***Psidium guajava***
7	***Fagopyrum esculentum***
8	***Curculigo capitulat***
9	***Blumea spp***
10	***Eryngium foetidu***
11	***Ageratum conyzoides***
12	***Solanum nigrum***
13	***Centella asiatica***
14	***Solanum indicum***
15	***Houttuynia cordata***
16	***Equisetum arvense***
17	***Plantago major***
18	***Punica granatum***
19	***Galinsoga parviflora***
20	***Artemisia princeps***
21	***Eupatorium adenophorum***
22	***Erigeron divergens***
23	***Pseudognaphalium affine*** **Scientific name**
24	***Bidens pilosa***
25	***Tagetes patula***
26	***Sonchus oleraceus***
27	***Lantana camara***
28	***Azadirachta indica***
29	***Aloe vera***
30	***Phyllanthus tenellus***
31	***Passiflora edulis***

Total number of medicinal plants: 31

6. Any threatened plant species planted/conserved?

Yes. The following species are grown and conserved within its natural habitat in the campus

(i) Acmellia paniculata
(ii) Blumea clarkei
(iii) Coelogyne cristata

(iv) Curcuma zedoaria
(v) Dioscoria bulbifera
(vi) Zanthoxylum rhesta

7. List the name and quantity of pesticides and fertilizers used in your gardens?

No pesticides and fertilizers are used. Organic fertilizers such as cow dung, decayed barks and leaves of trees are used spreading it around the soil for nourishment of the plants thus allowing it to take its natural course.

8. Are you doing any organic practice of composting in your campus?

Yes. The Department of Zoology maintains a Vermi-culture pit.

9. Mention the source of water used.

The college is supplied with water from the Dzükou Valley river which is stored in the main supply reservoir and is distributed to the whole campus.

10. Are you using any type of recycled water in your garden?

The college does not use recycled water as natural water source is available.

11. Is there any irrigation system in your college? No

12. Is there a nature club in your college? If yes, what are the activities?

Yes, the college has an Eco-club with 65 registered student members (34 male and 31 female) which is supervised by three Staff Directors with the support of 4 student Executive members. Some of the activities undertaken by the Eco-Club of the college are:

i. Plantation Drive
ii. Cleanliness Drive within the campus and the vicinities near the college
iii. Sensitising the students, staff and the nearby village communities about cleanliness, sanitation and environment conservation.
iv. Awareness campaign and seminars on Single Use-Plastics, Global warming and Climate Change
v. Outreach programme to nearby schools

13. What is the total area of the campus under tree cover?

Approximately 2.6 acres (10%) of the college area is under tree cover

14. Share your future plans for further improvement of green cover.

Some of the future plans of the college to improve the green cover and to manage the environment within the campus and the surroundings are as follows:

(i) Planting of trees such as cherry trees, more variety of fruit trees, herbs and vegetables.
(ii) Plantation drives in and around the campus for more green cover.
(iii) Involvement of students in plantation drive to instil the importance of green environment for clean and pollution free campus.
(iv) Maintaining herbal, medicinal and aesthetic plants and flowers

(v) Organising more awareness programs about Environment management, waste Management, Climate Changes, Biodiversity awareness etc

15. Have you incorporated green conservation aspects in your curriculum?

Yes, Environmental Science is offered to all the students of Undergraduate Studies and courses such as Green Chemistry, Economics of Agriculture, Environmental Sociology (both UG & PG) are part of the college curriculum.

16. Do students reach out to the public in conveying the message of nature conservation?

The students of the college as part of their curriculum and co-curricular activities carry out cleanliness and plantation drive, organise competitions on environmental conservation and management, and organise awareness campaigns and outreach programmes.

WASTE MANAGEMENT

1. What are the types of waste produced?

Biodegradable waste, Non-biodegradable waste, chemical waste, E-waste and water waste.

2. Quantity of waste produced (in kg) per day (approximately).

i. Biodegradable Waste: 100 kg approximately
ii. Non-biodegradable Waste: 15 kg approximately
iii. Chemical Waste: 1 kg approximately
iv. E-waste: 0.5 kg approximately
v. Water Waste: 1000 kg approximately

Total = 11155 kg approximately

3. Is segregation of waste done?

Segregation of waste for degradation, recycling and disposal are done at the source to prevent threat to life and the environment.

4. Methods of treatment/disposal of waste (both biodegradable and non-biodegradable).

Types of Waste	Constituents	Disposal method
E-Waste	Old computer parts, electronic boards and wires, old printers, old batteries etc	Partnering agency E-Circle
Non Bio-degradable solid waste	Broken glass wares, empty plastic & glass containers	The broken glass wares are collected and disposed off in a safe place.
Biodegradable solid waste	Food waste, vegetable peels,	Piggery, Vermicompost

		leaves etc	
Chemical waste	Solid	Filter paper, broken glass wares,	Incineration Land fill
	Liquid	Acids, organic solvents	Diluted with water
	Toxic	Heavy metals	Collect and disposed for recycle
Water waste		Urinals, bathrooms	Proper drainage system

5. Whether adequate drainage facility is available in the campus or not?
Yes, proper drainage is maintained within and outside the college campus.

WATER MANAGEMENT

1. **Source of water for various activities in the campus.**
   The college is supplied with water from the Dzükou valley river which is stored in the main reservoirs and is supplied to the whole campus.

2. **Source of drinking water.**
   The water supplied from the Dzukou source is used for supply of drinking water. Additionally, in all the important points of the college buildings filtered water source is maintained for drinking purpose.

3. Whether the following water conservation facilities are practiced
i) Rain water harvesting: **Yes**
ii) Borewell/open well recharge: **No**
iii) Construction of tanks and bunds: **Yes**
iv) Waste water recycling: **No.** The Waste Water is managed through drainage.

4. **How is waste water treated? If any**
   At present, the college does not have Waste Water Treatment facilities

ENERGY MANAGEMENT

1. Source of electricity?
(i) Power Grid (ii) Solar Panels

3. **Is solar energy utilized?**
   Yes. Solar heating panels are installed in the hostels, Staff Quarters, Solar Panels are installed at strategic points of the college and the solar bulbs are utilized to light up the surroundings college.

3. Electricity charges in a month: Rs. 80000/- per month approximately.

CARBON FOOTPRINT

1. **Mode of transportation for the staff and students?**

College Buses, Carpooling of taxis and personal cars are utilised for transportation.

2. **Do the college have bus facility for transportation?**
   Yes, the college provides bus facilities for transportation- 1 bus for Staff and 25 buses for students
3. **Is bicycle a mode of transportation within the college campus?**
   No

Give a list of the environmental awareness programmes conducted in the college during the previous two years.

Some of the environmental Activities Conducted by the colleges are:

1. Installing solar panels and solar lamps in the campus to save energy
2. Annual observation of World Environment Day on 5th June
3. Conducting cleanliness drive in the campus and the surrounding areas
4. Conducting of cleanliness drive on sites of importance in Kohima district
5. Plantation Drives are organised by the students under the different aegis of Clubs, associations and departments of the college. Apple, Kiwi, Persimmon, Jacaranda, Pines are some of the plants planted during the plantation drive
6. Maintaining botanical garden cum herbal plants heritage, Orchards and greenbelts in the college.
7. Observation of Environment and Ecological Days and Activities such as Earth Day, World Sustainable Energy Day etc.
8. Organising and participating in Clean India Campaign, Swachata, Biodiversity Walk etc., to create awareness about the environment.
9. Organising Environmental awareness campaigns and seminars.
10. Organising as well as participating in different Environment based competitions
11. Management of E-waste by forming the E-waste Club of the College which conducts E-waste collection drive in the college.
12. Launching of Eco-friendly Products of **Newspaper Pencil, Paper Pen and Plantable Badge** by the Department of Sociology, St. Joseph's College (Autonomous), Jakhama, under the entrepreneurial initiative of Mr. Keneisezo Thomas Belho, a Post Graduate Student of Department of Sociology of the College.
13. The College students are taught **grafting of plants** for plantation. There are **38 Apple grafted plants and 44 Plum grafted plants** ready for plantation. Some drafted trees (Plum) are planted for experiment.

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