



# Thomas Jones Synod College



## Green Audit Report 2023





GOVERNMENT OF MEGHALAYA  
OFFICE OF THE DEPUTY COMMISSIONER  
DISTRICT PROJECT MANAGEMENT UNIT  
WEST JAINTIA HILLS DISTRICT: JOWAI



Email:wjh.clmp@gmail.com

No.DPL.58/DPMU/WJH/CLLMP/2022- 23/ 183

Date: 18<sup>th</sup> August, 2023

**TO WHOM IT MAY CONCERN**

This is to certify that Thomas Jones Synod College, Jowai have conducted “Green Audit” of their college campus with regards to waste management, energy management, water management, carbon footprint analysis, classification of flora and fauna of the campus etc.The audit so conducted by the college as per Criteria 7 of National Assessment and Accreditation Council (NAAC) is excellent.

We appreciate and wish the college and its management the best of luck for their collective dedication towards creating a greener and more eco-conscious campus

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## Preface

It is with great pleasure and a sense of responsibility that we present the "Green Audit Report" of Thomas Jones Synod College, Jowai, for the academic year 2022-2023. This report signifies a collaborative effort of dedicated individuals and teams who have earnestly worked towards assessing and enhancing the college's environmental sustainability practices.

In an era marked by pressing ecological concerns and the need for responsible stewardship of our natural resources, institutions of higher learning play a pivotal role in shaping environmentally conscious and responsible citizens. The Green Audit, conducted this year, reflects the college's commitment to sustainable development, environmental awareness, and the integration of eco-friendly practices within its campus and curriculum.

The journey towards sustainability is a dynamic process that requires continuous evaluation, innovation, and adaptation. The Green Audit serves as a comprehensive evaluation mechanism, analyzing various aspects of the college's operations, infrastructure, and engagement with the environment. This report presents an overview of the audit's findings, highlighting areas of success, identifying areas for improvement, and proposing strategies for sustainable growth.

During the academic year 2022-2023, the Green Audit focused on various dimensions, including energy consumption, waste management, water conservation, green infrastructure, and the integration of sustainability concepts into the academic fabric of the college. The assessment process involved rigorous data collection, consultations with stakeholders, and benchmarking against best practices in the field of sustainability.

We extend our sincere gratitude to the college administration, faculty members, non-teaching staff, students, and all those who contributed to the Green Audit process. Their active participation, valuable insights, and dedication have been instrumental in shaping this report. The commitment displayed by the college community demonstrates a shared vision for a greener and more sustainable future. It is our hope that this Green Audit Report will serve as a catalyst for further positive change within Thomas Jones Synod College. As the recommendations and suggestions outlined herein are considered and implemented, we anticipate a future where the college stands as a beacon of sustainability, inspiring not only its own community but also contributing to the larger global effort towards environmental well-being.

May this report inspire thoughtful discussions, informed decision-making, and concrete actions that propel Thomas Jones Synod College towards a more sustainable and ecologically responsible path.

**The Investigator**



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## 1. Introduction

Thomas Jones Synod College is located in Jowai, the District Headquarter of the West Jaintia Hills District, Meghalaya. The College was established with a vision of providing college education to young men and woman who wish to have their education under Christian auspices by the erstwhile Khasi Jaintia Presbyterian Synod vide its Resolution No. 34 (E) CED of the Synod meeting held during 13th - 17th of March, 1996 at the Balang Mawten, Rangthong Presbytery.

### Name of the College

This College was particularly named after Rev. Thomas Jones, also known as the father of the Khasi Alphabet, who was the first missionary from the Presbyterian Church of Wales to set foot in the Khasi Hills at Sohra on the 22nd of June 1841. Naming the college after him is a humble token of commemoration for his significant and monumental contribution to the Khasi community, especially as the pioneer in the field of education.

### Mission of the College

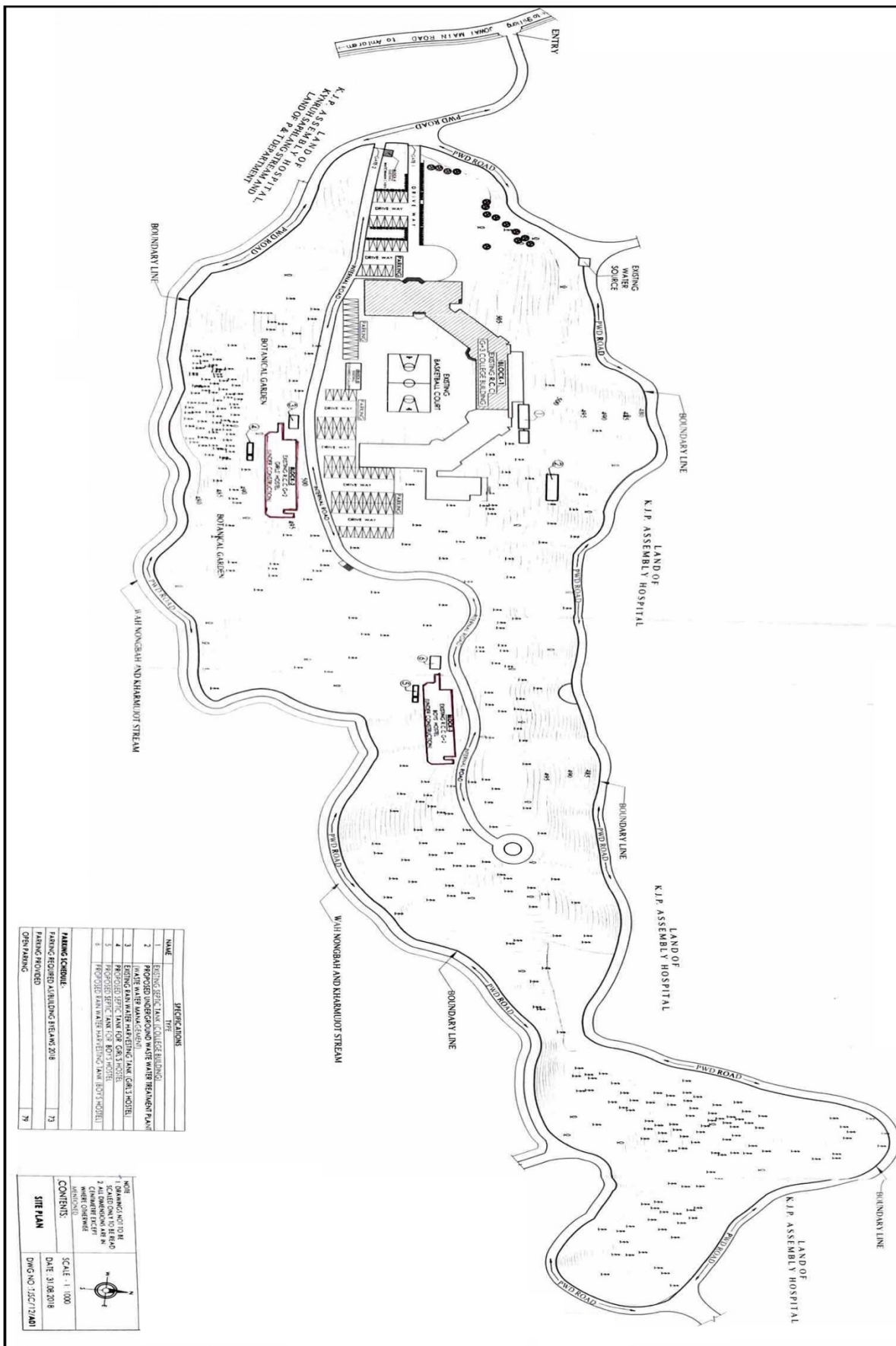
The Mission of this College is to provide its student with education of a high standard of scholarship and learning and to inspire and prepare them for selfless and dedicated service in any part of India as responsible citizens of the country.

### Motto of the College

The motto of the college shall be "Tip Briew, Tip Blei" which literally means "Know Man and Know God". This motto calls upon one and all to be conscientious, humane, socially committed and spiritually inspired persons. It is expected that this motto shall be a guiding principle to all student who graduate from this institution.



2. Map Location of the College Campus





### 3. GREEN AUDIT

Green Audit is assigned to the Criteria 7 of NAAC, National Assessment and Accreditation Council which is a self-governing organization of India that declares the institutions as Grade A, Grade B or Grade C according to the scores assigned at the time of accreditation. “Green Auditing”, an umbrella term, is known by another name “Environmental Auditing”. The ‘Green Audit’ aims to analyse environmental practices within and outside the college campus, which will have an impact on the eco-friendly ambience.

Educational institutions are playing important role in a nation’s growth and development which starts from maintenance of green campus without harming the environment. A clean and healthy environment in an organization determines effective learning skills and offers a conducive learning environment to the students.

The Thomas Jones Synod College takes initiative to contribute in sustainable development goals by ensuring that the institutional practices are environmentally sound, eco-friendly and sustainable. As a part of this initiative, the “Green Audit” of the college campus becomes important for self-assessment of the institution which reflects the concern of the college towards environmental sustainability. This Green Audit is an effective tool to formulate a culture of sustainability by implementing it through systematic identification, quantification, documentation, reporting and monitoring of environmentally important components in the campus. Green audit will also help in preserving the rich floral and faunal diversity in and around the campus.

Educational institutions are insisted by both Central and State Governments to offer eco-friendly atmosphere to the stakeholders. In addition, all the Educational institutions are asked to save the environment for future generations and to resolve the environmental problems (accumulating solid wastes and wastewaters/effluents and their careless disposal, enormous utility of plastics, uneconomical consumption of water, irresponsible in water harvesting and storage procedures, etc.) through Environmental Education.

#### **OBJECTIVES:**

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

The following are the objectives of Green Audit:

- To assess the floral diversity of the College campus.





- To assess the faunal diversity of the College campus.
- To assess the weather data of the College.
- To analyse the water of the College.
- To assess the waste disposal of College.
- To assess the transportation of the College.
- To assess the electrical power consumption of the College
- To assess the green initiative of the College during the last five years.

**BENEFITS OF GREEN AUDIT:**

- Better environmental practices of the institute.
- More efficient resource management.
- Benchmarking for environmental conservation initiatives.
- To create a green campus.
- Better waste management through reduction of waste generation and recycling.
- To create plastic free campus and create health consciousness among all the stakeholders of the college.
- Enhance the awareness for environmental conservation guidelines and duties.
- Developing environmental ethics and value systems among the students and other stakeholders.
- Develop a valuable tool to monitor the environmental and sustainable development of the college.

**METHODOLOGY ADOPTED FOR GREEN AUDIT:**

The methodology adopted to perform the entire Green Audit exercise includes: collection of data, physical inspection of the campus, observation and review of the documentation, data analysis and reporting.

Step 1 – Data Collection Data collection was performed by using different tools such as observation, measurements and communicating with responsible persons of the college.

Following steps were taken for data collection:

- The audit team visited the college building and department, library, canteen, open space, gardens of the campus and information was collected by interviewing with the responsible person.
- The energy data such as monthly electricity consumption and fuel consumption was collected from the officials and analysed.



- Waste management facility, other waste disposal process adopted by the college has been discussed and noted.
- All flora and fauna found in the college campus has been identified and listed out.
- Water quality of the campus has been measured
- Improvement of overall college profile

#### 4. Key Audit Outcomes and Observations

##### Water quality

The water quality at Thomas Jones Synod College was conducted to ensure a safe and conducive environment for students, faculty, and staff. The college's water testing was carried out in collaboration with the Public Health Engineering (PHE) Department in Jowai, which provided expertise and assistance in assessing the water quality parameters.

Considering the recent establishment of the Science College within the institution, the Department of Chemistry undertook the responsibility of water sample collection for testing. Due to the lack of adequate facilities on campus to conduct certain specialized water quality assessments, the college had to send the collected samples to external laboratories. This decision was made to ensure accurate and comprehensive analysis, adhering to standard protocols and methodologies.

The water quality assessment aimed to analyse various parameters, including pH levels, turbidity, total dissolved solid, chloride level, total alkalinity, total hardness, residual chlorine level and the iron level. By conducting such thorough testing, the college sought to identify any potential issues or concerns related to water quality that might affect the well-being and health of the college community.

Overall, the water quality assessment at Thomas Jones Synod College demonstrates the institution's commitment to providing a safe and healthy learning environment. The collaboration with the PHE Department Jowai and the proactive approach taken by the Department of Chemistry highlights the college's dedication to ensuring the well-being of its stakeholders and promoting an atmosphere conducive to academic and personal growth.

The test result of water sample collected from Thomas Jones Synod College Jowai is provided below:

Sl. No.	Test Parameter	Unit	Test Method	Test Result	Remarks
1	Color	Hazen	IS 3025 (Part 4)	1	Pass
2	Odour	----	IS 3025 (Part 5)	Agreeable	Pass
3	pH	----	IS 3025 (Part 11)	6.52	Pass
4	Turbidity	NTU	IS 3025 (Part 10)	1.7	Pass
5	Total Dissolved Solid	Mg/l	IS 3025 (Part 16)	278	Pass
6	Chloride	Mg/l	IS 3025 (Part 32)	55.82	Pass
7	Total Alkalinity	Mg/l	IS 3025 (Part 23)	5.75	Pass
8	Total Hardness	Mg/l	IS 3025 (Part 21)	22.6	Pass
9	Residual Chlorine	Mg/l	IS 3025 (Part 26)	Not Detected	Pass
10	Iron	Mg/l	IS 3025 (Part 53)	0.12	Pass

Source: Public Health Engineering (PHE), Jowai Meghalaya

### Water Usage in the College Campus

Activity	Water used per activity (litres)	No. of times activity done each day	Average water used by a person each day (litres)	No. of people in the college using water	Total water consumption per day
Common Toilet (Staff)	1-2 ltrs	3 times/day	$1.5 \times 3 = 4.5$ ltrs	85	382.5 ltrs/day
Boys Toilet	0.4-0.8 ltrs	2 times/day	$0.6 \times 2 = 1.2$ ltrs	350	420 ltrs/day
Girls Toilet	0.4-0.8 ltrs	2 times/day	$0.6 \times 2 = 1.2$ ltrs	450	540 ltrs/day
Lab Uses					200 ltrs/day
<b>Total water Usage</b>					<b>1542.5 ltrs/day (approx)</b>

The college relies predominantly on underground water sources to meet its daily water requirements. This water is primarily utilized for the staff toilets, boys' and girls' toilets, as well as laboratory usage. The staff toilets within the college campus are essential facilities that cater to the needs of the teaching and non-teaching staff. As these toilets are regularly used during college hours, they contribute to a significant portion of the college's water consumption. The boys' toilets and girl's toilet are another crucial area where water is consumed. Given the number of male and female students, these facilities witness consistent usage throughout the day. Laboratory usage, including experiments, cleaning equipment, and other activities, is a considerable source of water consumption. The college's labs, used for various academic disciplines, require a sufficient water supply to function effectively.

Based on the analysis, the approximate total water usage of Thomas Jones Synod College, Jowai, stands at around 1542.5 litres per day. It is important to note that this estimation may vary slightly depending on seasonal factors, college activities, and maintenance requirements. Regular monitoring and water conservation practices can help optimize water usage and minimize wastage.

### Waste Management

Waste management is important as it saves the environment from toxic effects of biodegradable element present in waste. Mismanagement of waste can cause water and air contamination in the campus. It is important for an eco-friendly campus and in achieving a higher level of environmental performance. Recycling and reusing of wastes are crucial to saves natural resources and protect the environment.



Different types of solid wastes in the college are generated, its collection and management are very challenging. Types of solid wastes generated in the campus are mainly plastic waste, paper waste, construction waste, biodegradable waste, construction waste etc. At present the college does not have proper solid waste management system some of the waste like construction waste are being reuse in the collect from time to time whereas paper waste are being sold directly. There is no mechanism up to date to collect and compose waste separately as well to dispose compost waste in a scientific manner.

Most of the waste generated in the college are being manage by the Jowai Municipal Board as per the agreement with the college. The letter of agreement is provided below:

**OFFICE OF  
THE JOWAI MUNICIPAL BOARD, JOWAI  
WEST JAINTIA HILLS DISTRICT, MEGHALAYA**

No. JMB/Genl-78/2022-23/4

Dated Jowai, the 26<sup>th</sup> May 2023.

To,

✓ The Principal,  
Thomas Jones Synod College,  
West Jaintia Hills District, Jowai.

Thomas Jones Synod College

Jowai

Receipt No 110  
Date 27/5/2023  
Posted to File 27/5/2023

**Subject: -** Matter relating to collection of General Waste from Thomas Jones Synod College, Jowai.

**Reference:** No.TJSC.27/Misc/2023/100 Dated. 4<sup>th</sup> April, 2023.

Sir,

With reference to the above, I am to inform you that the Jowai Municipal Board will be collecting General Waste generated from the *Thomas Jones Synod College, Jowai* as per usual programme fixed for different localities, copy enclosed with immediate effect. The Waste Collection is liable to realisation of service charge as and when fixed by the Board

This is for favour of your kind information and necessary action.

Enclosed: As above.

Yours faithfully,

  
Chief Executive Officer  
Jowai Municipal Board  
Jowai

Memo. No. JMB/Genl-78/2022-23/

Dated Jowai, the \_\_\_ May 2023.

Copy to:-

1. The Chairman, Jowai Municipal Board for information and necessary action.
2. The Accountant, Jowai Municipal Board for information and necessary action.
3. The S.I, Jowai Municipal Board for information and necessary action.

  
Chief Executive Officer  
Jowai Municipal Board  
Jowai



Existing waste management practiced in the college by the stakeholders of the college:

- Cleaning the campus on daily basis.
- Waste bins are being placed in office, staff rooms, classrooms, in and around the college campus.
- Campus cleaning is done on weekly basis allotted to the different departments by the IQAC Coordinator which is supervise and monitor by the teachers concerned of the respective department. Students actively participated in the cleaning drive.

### **Energy Management**

An assessment of the community's sustainability includes evaluating energy consumption, sources used, energy management, lighting devices, and other appliances utilized within the campus. Thus, this aspect becomes crucial during the assessment process. Energy auditing holds significant importance in the college as it provides insights into energy consumption while facilitating energy conservation. The college employs various electrical appliances such as computers, laptops, Xerox machines, printers, screen projectors, water pumps, tube lights, biometric devices, and others, each contributing to energy consumption based on their usage time. The primary energy source for our campus is provided by Meghalaya Energy Corporation Limited (MeECL). The average electricity charges over the last five years amounted to Rs 111,459 per year, signifying the campus's energy consumption pattern. The assessment results have led to valuable suggestions and recommendations for energy efficiency improvements.

Current saving methods adopted in the campus are:

- Turn off any electrical appliances when not in use.
- Use computers and electronic equipment in power saving mode.
- Use natural light in the classrooms whenever possible.
- Gradual replacement of existing non-LED based lights to LED's can further bring down costs for lighting.

The college authority is planning to install solar lights in the near future to reduce energy consumption. Awareness programs for the stakeholders to save energy is a must to conserve energy consumption in the campus.



### Green Campus

- Planting more trees inside the college campus.
- Conducting competitions among departments for making students more interested in making the campus clean and green.
- Celebrating environment day with daily good habits to promote environment protection.
- Beautify the campus with indoor plants.
- All trees should be named scientifically and put tags on different types of trees in the campus to generate enthusiasm for learners.

### Floral Diversity of Thomas Jones Synod College:

The campus of Thomas Jones Synod College flourishes with an enchanting array of flora, contributing to its vibrant and ecologically diverse landscape. The towering presence of Cypress, Monkey Puzzles, and Japanese Cedars adds an air of majesty, while the delicate Ilex and Chinquapin trees provide subtle beauty. Amidst the greenery, the vibrant foliage of Fern Trees and Mango trees thrives. Diverse species like the Black Cherry and Wax Tree contribute to the botanical tapestry, accompanied by the noble Silver Oaks and Heart leaf plants. The campus also boasts unique varieties like the Caribbean Cooper plant, Azaleas, and Sago Palms, which lend an exotic charm. The enchanting blossoms of China Roses, Camellias, and Dahlias infuse color and fragrance into the surroundings. The presence of plants like Bottle brushes, Khasi Pines, and Khasi Schimas adds a touch of local charm, while the St. Joseph's Lily and Rain Lily White provide elegance. Graceful plants like the Thai Silk Bamboo, Wall Osbeckia, and Malabar Melastome enhance the campus's natural beauty. From the Himalayan Bayberry to the Bougainvillea, the floral diversity showcases nature's boundless creativity. Even amidst this vibrant mix, urban flora like Dracaenas, White Clovers, and Areca Palms contribute to the campus's unique ecosystem. With every step, the campus is an exploration of botanical wonder, where every plant tells a story of nature's abundance.

There are a total of 76 different types of plants in the college campus, being identified and documented by the Department of Botany and Environment. The following are the plant species present within the college campus:

Sl. No.	Scientific Name	Common Name
1.	<i>Thuja compacta</i>	Cypress
2.	<i>Araucaria sp.</i>	Monkey Puzzles
3.	<i>Cryptomeria japonica</i>	Japanese Cedar

4.	<i>Ilex doniana</i>	Ilex
5.	<i>Castanopsis sp.</i>	Chinquapin
6.	<i>Jacaranda sp.</i>	Fern Tree
7.	<i>Mangifera indica</i>	Mango
8.	<i>Prunus serotira</i>	Black Cherry
9.	<i>Rhus succedanca</i>	Wax Tree
10.	<i>Grevillea robusta</i>	Silver Oak
11.	<i>Macaranga sp.</i>	Heart leaf
12.	<i>Euphorbia cotinifolia</i>	Caribbean Cooper plant
13.	<i>Azalea sp</i>	Azalea
14.	<i>Cycas sp.</i>	Sago Palm
15.	<i>Hibiscus rosa sinensis</i>	China Rose
16.	<i>Camellia sp.</i>	Camellia
17.	<i>Dahlia sp.</i>	Dahlia
18.	<i>Callistemon citrinus</i>	Bottle brush
19.	<i>Pinus kesiya</i>	Khasi Pine
20.	<i>Exbucklandia populnea</i>	Pipli Tree
21.	<i>Schima wallichii</i>	Khasi Schima
22.	<i>Hippeastrum johnsonii</i>	St. Joeph's Lily
23.	<i>Zephyranthes candida</i>	Rain Lily White
24.	<i>Bambusa nana</i>	Thai Silk Bamboo
25.	<i>Osbeckia sp.</i>	Wall Osbeckia
26.	<i>Melastoma malabatricum</i>	Malabar Melastome
27.	<i>Myrica sp.</i>	Himalayan Bayberry
28.	<i>Bougainvillea</i>	Bougainvillea
29.	<i>Pouzolzia hirta</i>	Graceful Pouzolz's Bush
30.	<i>Eupatorium oleraceus</i>	Sow Thistle
31.	<i>Spilanthes acmella</i>	Toothache plant
32.	<i>Crassocephalum crepidioides</i>	Thickhead
33.	<i>Persicaria sagittata</i>	Arrow-leaved tearthumb
34.	<i>Oenothera rosea</i>	Evening Primrose
35.	<i>Polygonum capitatum</i>	Pink knotweed



36.	<i>Fagopyrum esculentum</i>	Buckwheat
37.	<i>Dryopteris sp.</i>	Wood Fern
38.	<i>Pteris wallichiana</i>	Mother fern
39.	<i>Elaphoglossum sp.</i>	Creeping tongue fern
40.	<i>Biden spillosa</i>	Black Jack
41.	<i>Crotalaria sp.</i>	Rattle weed
42.	<i>Borreria ocymoides</i>	Purple Leaved Button Weed
43.	<i>Lantana camara</i>	Lantana
44.	<i>Ipomea indica</i>	Blue Moring Glory
45.	<i>Rubus sp.</i>	Wild berry
46.	<i>Dracaena sp.</i>	Dracaena
47.	<i>Trifolium repens</i>	White clover
48.	<i>Bistorta sp.</i>	Alpine bistort
49.	<i>Scutellaria sp.</i>	Skullcap
50.	<i>Ocimum sp.</i>	Wild mint
51.	<i>Urena lobata</i>	Caesarwood
52.	<i>Dendrocnide sp.</i>	Alingatong
53.	<i>Murdannia divergens</i>	Diverging Dewflower
54.	<i>Cyperus sp.</i>	Nut Sedge
55.	<i>Entolasia sp.</i>	Bordered panic grass
56.	<i>Phragmites sp.</i>	Reed weed grass
57.	<i>Alternanthera ficoidea</i>	Grenadine Joseph's coat
58.	<i>Catharanthus roseus</i>	Periwinkle
59.	<i>Melampodium</i>	Butter Daisy
60.	<i>Thunbergia coccinea</i>	Scarlet Clock Vine
61.	<i>Artemisia sp.</i>	Wormwood
62.	<i>Debregeasia orientalis</i>	Yanagi ichigo
63.	<i>Dypsis lutescens</i>	Areca Palm
64.	<i>Centella asiatica</i>	Pennywort
65.	<i>Geranium maculatom</i>	Crane's-bill
66.	<i>Sonchus sp.</i>	Sow thistle
67.	<i>Aegeratum conyzoides</i>	Billygoat Weed

68.	<i>Psidium guajava</i>	Gauva
69.	<i>Oxalis corniculata</i>	Creeping Woodzorrel
70.	<i>Houttuynia cordata</i>	Chameleon Plant
71.	<i>Kalanchoe prolifera</i>	Blooming boxes
72.	<i>Galinsoga parviflora</i>	Gallant soldier
73.	<i>Erigeron karvinskianus</i>	Mexican fleabane
74.	<i>Leibnitzia sp.</i>	Sunbonnets
75.	<i>Smilax rotundifolia</i>	Common greenbrier
76.	<i>Pseudognaphalium luteoalbum</i>	Jersey cudweed

**MEDICINAL PLANTS COMMONLY AVAILABLE IN THE COLLEGE CAMPUS**  
**THOMAS JONES SYNOD COLLEGE, JOWAI, MEGHALAYA**

1. *Centella asiatica* L.Urb

Kingdom	Division	Class	Order	Family
Plantae	Tracheophyta	Magnoliopsida	Apiales	Apaceae

**Vernacular Name(s):** Mandookparni, Gotu kola, Khliang syiar, Tyngkhieh



**Medicinal Uses:**

- ❖ Leaf extract is taken orally to cure dysentery and improve memory power.
- ❖ Crushed leaf and root extract is applied to the affected parts to kill germs from wounds.
- ❖ Decoction of leaves is also applied to cure leprotic wound.
- ❖ Tea of the plants is taken for hypertension, diarrhoea and urinary tract infections.
- ❖ The dried herb is used as a detoxicant, diuretic and to lower blood pressure and decrease heart rate.
- ❖ Gotu kola is also regularly used in children to prevent hyperactivity and promote memory status.
- ❖ The extract derived from the roots of the Gotu kola plant helps to renew and enrich skin cells.
- ❖ Juice of the plant is applied on forehead to treat headache.

2. *Sonchus arvensis*

Kingdom	Division	Class	Order	Family
Plantae	Tracheophyta	Magnoliopsida	Asterales	Asteraceae

**Vernacular Name(s):** Ki-lan-jiat**Medicinal Uses:**

- ❖ The latex from the stem is used in the treatment of warts.

- ❖ The latex is also said to have anticancer activity.
- ❖ The stem juice is a powerful hydrogogue and cathartic, it should be used with great caution since it can cause colic and tenesmus.
- ❖ The leaves are said to clear infections, and are diuretic, hepatic, sedative and stomachic.
- ❖ The leaves are also used in the treatment of eye problems, gastritis, salmonella infection, kwashiorkor and anaemia.
- ❖ The roots are abortifacient, purgative and vermifuge.
- ❖ The gum has been used as a cure for the opium addiction.
- ❖ Decoction of the whole plant is used against haemorrhoids.
- ❖ Juice of the plant used for cleaning and healing ulcers.

### 3. *Eupatorium adenophorum* L.

Kingdom	Division	Class	Order	Family
Plantae	Tracheophyta	Magnoliopsida	Asterales	Asteraceae

Vernacular Name(s): Sla byrma, Bat sma iwtung



#### Medicinal Uses:

- ❖ Leaves and young shoots are applied in cuts, wounds and burns.
- ❖ The leaf juice is commonly used to treat dysentery and stomach pain.

- ❖ It is used traditionally in south India for the treatment of chikungunya (if you take bath in the water boiled with leaf of a common plant your pain will reduce.)

#### 4. *Ageratum conyzoides* Linn

Kingdom	Division	Class	Order	Family
Plantae	Tracheophyta	Magnoliopsida	Asterales	Asteraceae

**Vernacular name(s):** Muriaw



#### **Medicinal Uses:**

- ❖ Used for the cure from skin disease such as itching, redness.
- ❖ Raw leaves are crushed and applied on the boils for cure.
- ❖ Leaves are used in open cuts and wound healing,
- ❖ Leaf juice is dropped on the thorn pierced part to get rid of thorn.
- ❖ Leaf's powdered and applied on the wounds caused due to leprosy, though it won't completely cure leprosy but helps in curing wounds.
- ❖ Flower heads are made into juice and applied externally for scabies while a paste is used to treat rheumatism.
- ❖ The essential oils contained in the plant have antibiotic properties.

- ❖ The juice of the fresh plant, or an extract of the dried plant, is used in the treatment of allergic rhinitis and sinusitis.
- ❖ The juice of the fresh plant is also useful in treating post-partum uterine haemorrhage.
- ❖ A tea made from the flowerheads mixed with *Ocimum tenuifolium* is used to treat coughs and colds.

#### 5. *Spilanthes acmella*

Kingdom	Division	Class	Order	Family
Plantae	Tracheophyta	Magnoliopsida	Asterales	Asteraceae

**Vernacular Name(s):** Hooiin, Phlang rmi stem



#### **Medicinal Uses:**

- ❖ The numb sensation of the plant makes it to be popularly used as a natural anaesthetic plant. People use to reduce the pain when they have mouth sores problems by chewing the leaf or the flower.
- ❖ It is also used to treat toothache, throat, and gum infection.
- ❖ The plant is further recommended as a cure for dysentery and rheumatism, and to enhance the immune system. It is used against blood parasites, especially against malaria, both prophylactic and curative.
- ❖ The leaves and flower heads are analgesics, anthelmintic, antibacterial and antifungal.

- ❖ The seeds work as an anti-depressant that relieves depression and elevates the mood.
- ❖ Seeds can also be used as an antacid and acid blocker that neutralizes excess stomach acid to relieve heartburn, upset and sour stomach.

#### 6. *Psidium guajava* L.

Kingdom	Division	Class	Order	Family
Plantae	Tracheophyta	Magnoliopsida	Myrtales	Myrtaceae

**Vernacular name(s):** Soh priam



#### **Medicinal Uses:**

- ❖ A decoction of the plant is antispasmodic, astringent, febrifuge and vulnerary.
- ❖ Guava exhibits antibacterial action against intestinal pathogens such as Staphylococcus
- ❖ All parts of the young fruit are astringent.
- ❖ The dried ripe fruits are recommended as a remedy for dysentery, while the leaves and fruits are used as a cure for diarrhoea.
- ❖ The ripe, fresh fruit is eaten as a cure for constipation.
- ❖ Water from soaking the fruit is good to treat diabetes.
- ❖ The clear fruit juice has been recommended as a treatment for hepatitis, gonorrhoea, and diarrhoea.

- ❖ The oil from the seed contains bisabolene and flavonoids that exhibit anti-inflammatory properties.
- ❖ Compounds in the leaves have shown antidiabetic activity.
- ❖ The leaves are used as a treatment for diarrhoea, coughs, stomach ache and dysentery.
- ❖ The leaves are pounded, squeezed in salt water and the solution is used to treat toothaches.
- ❖ A decoction of the leaves or bark is taken externally as a lotion for skin complaints, ringworm, wounds, and ulcers.
- ❖ The bark, mixed with the roots of *Achyranthes aspera* and *Urena lobata*, is used to treat diarrhoea and dysentery.

#### 7. *Oxalis corniculata* L.

Kingdom	Division	Class	Order	Family
Plantae	Tracheophyta	Magnoliopsida	Oxidales	Oxidaceae

**Vernacular Name(s):** Sohkhia khnai, Iajaw



#### **Medicinal Uses:**

- ❖ Leaf juice is used in the treatment of jaundice and is very effective to cure symptoms of diabetes i.e. polyhydra.
- ❖ It is used in the treatment of influenza, fever, urinary tract infections, enteritis, diarrhoea, traumatic injuries, sprains and poisonous snake bites.
- ❖ The plant is a good source of vitamin C and is used as an antiscorbutic in the treatment of scurvy.



- ❖ The juice of the plant, mixed with butter, is applied to muscular swellings, boils and pimples.
- ❖ An infusion can be used as a wash to rid children of hookworms.
- ❖ The leaves are used as an antidote to poisoning by the seeds of *Datura spp*, arsenic and mercury.
- ❖ The leaf juice is applied to insect bites, burns and skin eruptions.
- ❖ It has an antibacterial activity.
- ❖ Leaf extract mixed with oil used in local massage helps in relieving insomnia.

#### 8. *Houttuynia cordata*

Kingdom	Division	Class	Order	Family
Plantae	Tracheophyta	Magnoliopsida	Piperales	Saururaceae

**Vernacular name(s):** Jamyrdoh



#### **Medicinal Uses:**

- ❖ There is some evidence that the plant is antibacterial, anti-inflammatory, and antiviral.
- ❖ Heartleaf has been used extensively to treat various ailments, including high blood sugar, cholera.
- ❖ It is used to fight dysentery, chronic sinusitis, leukemia, coughs, and even snake bites and skin disorders.

- ❖ Root extract is used as a diuretic, while the leaves are an astringent.
- ❖ Used as a remedy for indigestion, urinary and liver problems.
- ❖ Also a blood purifier.
- ❖ *Houttuynia cordata* extract also has anti-aging benefits by preventing the degradation of collagen, elastin, and hyaluronic acid in the skin.

#### 9. *Fagopyrum esculentum* L.

Kingdom	Division	Class	Order	Family
Plantae	Tracheophyta	Magnoliopsida	Piperales	Saururaceae

**Vernacular name(s):** Jaraiñ.



#### **Medicinal Uses:**

- ❖ The leaves and shoots of flowering plants are acrid, astringent and vasodilator.
- ❖ It is used internally in the treatment of high blood pressure, gout, varicose veins, chilblains, radiation damage etc.
- ❖ It is best used in conjunction with vitamin C since this aids absorption.
- ❖ Often combined with lime flowers (*Tilia species*), it is a specific treatment for haemorrhage into the retina.
- ❖ The leaves and flowering stems are harvested as the plant begins to flower and are dried for later use.

- ❖ They should be stored in the dark because the active ingredients rapidly degrade in the light.
- ❖ Some caution should be exercised in the use of this herb because it has been known to cause light-sensitive dermatitis.
- ❖ A poultice made from the seeds has been used for restoring the flow of milk in nursing mothers.
- ❖ An infusion of the herb has been used in the treatment of erysipelas (an acute infectious skin disease).
- ❖ A homeopathic remedy has been made from the leaves.
- ❖ It is used in the treatment of eczema and liver disorders.

#### 10. *Kalanchoe prolifera*

**Vernacular Name(s):** Syntu Ding

Kingdom	Division	Class	Order	Family
Plantae	Tracheophyta	Magnoliopsida	Saxifragales	Crassulaceae



#### Medicinal Uses:

- ❖ The sap has anti-inflammatory properties and can be used in dentistry and gynecology.
- ❖ It also helps in the rapid healing of burns, ulcers, and frostbite.

- ❖ It is also used to treat tonsillitis.
- ❖ The leaves of the plant were used to alleviate digestive issues. For instance, it can treat gastritis, an ulcer stomach, and inflammation.
- ❖ The leaves can be warmed and applied to the forehead for ten minutes to cure headache. Alternatively, after boiling it, you can also squeeze the juice from it and then rub it. It will lessen the pain. This is one of the oldest headache treatments in Africa.
- ❖ Foot pain can be effectively treated by warming and soaking the leaves in hot water. It will work its magic to reduce weariness if you rest your feet there for a few hours.

### Faunal Diversity of Thomas Jones Synod College:

The campus of Thomas Jones Synod College boasts a rich and diverse faunal community, contributing to the vibrant ecosystem within its boundaries. From the intricate web-spinning Jumping spiders to the stealthy hunters like the Wolf spiders, a fascinating array of arachnids call the campus home. The majestic Atlas moth graces the surroundings with its impressive wingspan, while the industrious Bumble bees diligently pollinate the flora. The presence of creatures like the Common five-ring and the graceful Dragonflies adds a touch of elegance to the environment. Insects like Flies, Grasshoppers, and Hover flies contribute to the buzzing symphony of life, coexisting alongside the captivating Grass yellow butterflies. The campus also serves as a habitat for various other species, such as the striking Scarlet Mormon and Scarlet skimmer Dragonfly, as well as the elusive Tree frogs and Green vipers. Notably, even amidst this natural splendor, urban wildlife such as Squirrels, Rats, and Dogs find their place, offering a unique blend of biodiversity within the college premises.

The following are the list of faunal diversity in the college campus, being identified and documented by the Department of Zoology.

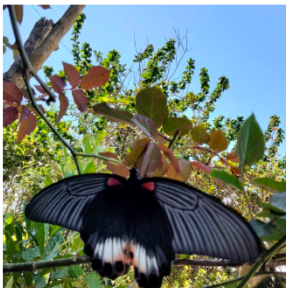
Fauna in the campus			
Fauna	Sl. No.	Common name	Family/Scientific name
Arachnids	1	Jumping spider	<i>Hasarius sp.</i>
	2	Wolf spider	<i>Pardosa sp.</i>
Insects	1	Atlas moth	<i>Archeoattacus sp.</i>
	2	Beetle	Scarabaeidae
	3	Brush-footed butterfly	<i>Acraea sp.</i>



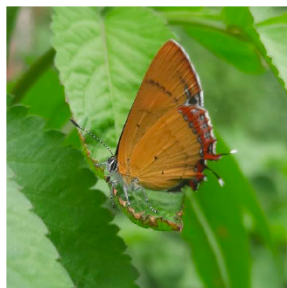
4	Butterfly	<i>Heliophorus sp.</i>
5	Pansy butterfly	<i>Junonia sp.</i>
6	Bumble bee	<i>Bombus sp.</i>
7	Cereal bug	<i>Eysarcoris sp.</i>
8	Cockchafer beetle	<i>Melolontha sp.</i>
9	Common five-ring	<i>Ypthima sp.</i>
10	Cricket	Grylloidea
11	Dragon fly	<i>Orthetrum sp.</i>
12	Flea beetle	Chrysomelidae
13	Fly	<i>Carcelias sp.</i>
14	Glass snail	<i>Vitrina sp.</i>
15	Grasshopper	<i>Chorthippus sp.</i>
16	Grasshopper	Acrididae
17	Grasshopper	Pyrgomorphidae
18	Grass yellow butterfly	<i>Eurema sp.</i>
19	Green bottle fly	<i>Lucilia sp.</i>
20	Hover fly	<i>Platycheirus sp.</i>
21	Lady bug	Coccinellidae
22	Leaf beetle	<i>Plagioderia sp.</i>
23	Robberfly	<i>Neoitamus sp.</i>
24	Scarab beetle	<i>Popillia sp.</i>
25	Scarlet Mormon	<i>Papilio sp.</i>
26	Scarlet skimmer (Dragon fly)	<i>Crocothemis sp.</i>
27	Snowy urola moth	<i>Urola sp.</i>

	28	Spiky leaf beetle	<i>Hispini sp.</i>
	29	Stag beetle	<i>Aegus sp.</i>
	30	Swan moth	<i>Sphrageidus sp.</i>
	31	Weevil	<i>Dryophthorus sp.</i>
	32	Weevil	Curculionidae
	33	Yellow paper wasps	<i>Polistes sp.</i>
Amphibia	1	Tree frog	<i>Rhacophorus sp.</i>
Reptiles	1	Green viper	<i>Trimeresurus sp.</i>
	2	Lizard	<i>Calotes sp.</i>
Mammals	1	Squirrel	<i>Sciurus sp.</i>
	2	Rat	<i>Rattus sp.</i>
	3	Dog	<i>Canis familiaris</i>

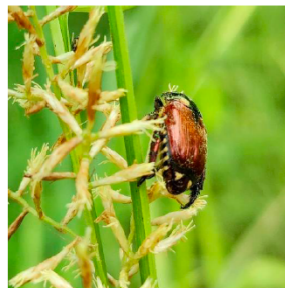
Some of the Fauna found in the campus



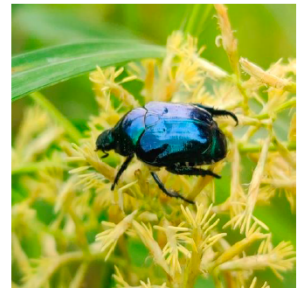
*Papilio sp.*



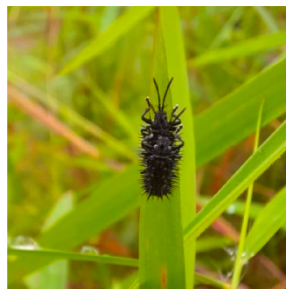
*Heliophorus sp.*



*Popillia sp.*



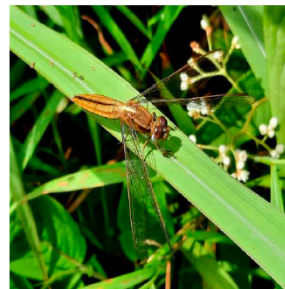
*Plagioderia sp.*



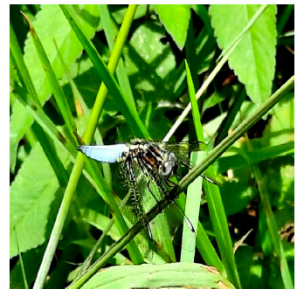
*Hispini sp.*



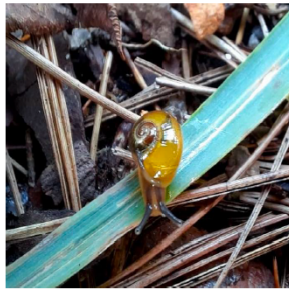
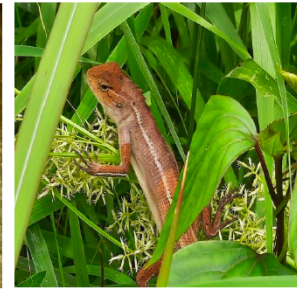
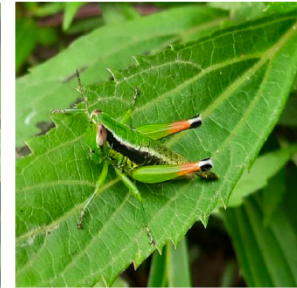
*Neoitamus sp.*



*Crocothemis sp.*



*Orthetrum sp.*

*Vitrina sp.**Hasarius sp.**Hasarius sp.**Calotes sp.**Rattus sp.**Rhacophorus sp.**Chorthippus sp.*

Family: Acrididae

### Green Practices

Environmentally friendly actions aimed at protecting and minimizing negative effects on the environment are regularly practiced on our campus. Various green awareness initiatives, conducted by organizations like the National Service Scheme (NSS), National Cadet Corps (NCC), Eco-club, and different departments, play a vital role. These initiatives include cleaning drives, tree planting, environmental awareness seminars, talks, and lectures, all contributing to ensuring environmental sustainability both within and around the campus.

### Carbon Footprint Auditing

The most common greenhouse gases, including carbon dioxide, water vapor, methane, nitrous oxide, and ozone, play a significant role in the Earth's atmosphere. Among them, carbon dioxide stands out as the most prominent greenhouse gas. Each individual's daily activities and instrument usage contribute to the emission of greenhouse gases, adding to the overall carbon footprint. Understanding the carbon footprint becomes essential, particularly in institutes with numerous anthropogenic activities, as it allows us to assess the contribution of gas emissions responsible for the greenhouse effect. For the campus under consideration, the carbon footprint audit focused on the number of vehicles used by the teaching and non-teaching staff. It's noteworthy that the majority of staff opt for public transportation or walk to the campus daily, with only a few using private vehicles.

**Number of persons using two wheelers: 2**

- ❖ Average Distance travelled: 10-15 km (approx)
- ❖ Average Quantity of fuel used: 0.4-0.6 ltrs

**Number of cars used by Staff: 14**

- ❖ Average distance travelled: 10-15 km (aprox)
- ❖ Average Quantity of fuel used: 0.6-0.8 ltrs

Few measures taken by the college to reduce greenhouse gases emission in the campus are:

- ❖ Planting of trees in the campus.
- ❖ Carpooling, wherever possible, particularly by those who are using cars should be encouraged.
- ❖ Students are not allowed to bring vehicles in the campus.
- ❖ Encourage the use of bicycles and public transport system and discourage using two-wheeler for their commutation.

## 5. Recommendations/ Consolidation of Audit Findings

### Common Recommendations

- Conduct more seminars, workshop, awareness program, lecture, group discussions on environmental education.
- To adopt and follow the environmental policy or green policy of the college.
- Encourage students and staff to solve local environmental problems.
- Establish water, waste and energy management system.

### Criteria wise recommendation

#### Water

- Promote water-saving practices such as fixing leaks promptly and installing water-saving fixtures in restrooms.
- Educate students and staff about the importance of water conservation through awareness campaigns.
- Implement rainwater harvesting systems to collect and store rainwater for non-potable uses.
- Install display boards to control over exploitation of water.

#### Waste

- Establish a comprehensive waste management program that encourages recycling and waste segregation.





- Promote the use of reusable bottles, mugs, and containers to minimize single-use plastic waste.
- Implement composting of organic waste generated in the college's canteen and gardens.
- A scientific model for solid waste treatment to be set up in the college.
- Paper waste can be reduced by maximizing e-communication and e-learning.
- Establish a plastic free campus if possible.
- Plastic waste can be collected separately and given to the vendors and sold to plastic collection center and can be used for recycling.
- Avoid plastic, thermocol plates and cups in the college and in any department function.

### **Energy**

- Install energy-efficient LED lighting across the campus to reduce electricity consumption.
- Conduct energy audits periodically to identify areas where energy efficiency can be enhanced further.
- Encourage staff and students to power down computers, laptops, and other electronic devices when not in use.
- Conduct more save energy awareness programs for students and staff.
- Installation of solar panels with proper maintenance.

### **Carbon footprint**

- Plant more trees to absorb greenhouse gases.
- Encourage staff to use public transport.
- Increase a system of carpooling among the staff to reduce the number of four-wheelers coming to the college.
- Discourage the students the use of two-wheeler for their commutation.
- Develop pedestrian-friendly pathways and promote walking as a sustainable mode of transport within the campus.

### Future Action Plans

- ❖ Installation of solar energy in the campus.
- ❖ To establish rainwater harvesting systems on rooftop or ground in the campus to conserve water.
- ❖ Year wise internal audit on green, water and energy to be conducted by respected teachers.
- ❖ Proper management and month wise mapping of water and energy usage to be conducted by monitoring the same in the records.
- ❖ Proper waste water management.
- ❖ Proper monitoring and disposal of waste discharge from chemical laboratories
- ❖ Energy maintenance by proper usage of electrical appliances.
- ❖ To install poly house or greenhouse for planting specimens for practical purposes especially for science students.
- ❖ Awareness programs on water conservation, energy conservation, waste management should be conducted from time to time.
- ❖ Increase green spaces on the campus by planting native trees and creating gardens.
- ❖ Foster student-led initiatives and clubs focused on environmental awareness and action.
- ❖ Regularly monitor and track progress toward achieving green audit goals.
- ❖ Review the action plan periodically to assess its effectiveness and make necessary improvements.

By implementing this future action plan, Thomas Jones College can significantly reduce its environmental impact, contribute to sustainability, and inspire positive changes in the broader community.

### 6. Suggestions

Some of the important suggestions are:

- ❖ Conduct a Comprehensive Green Audit: Begin by conducting a thorough green audit of the college campus to assess current practices, energy consumption, waste generation, and water usage. This audit will serve as a baseline to identify areas for improvement and set realistic sustainability goals.
- ❖ Establish an Environmental Committee: Form an environmental committee comprising students, faculty, and administrative staff to oversee and coordinate green initiatives on the campus. This committee can be responsible for planning and implementing sustainability projects.



- ❖ **Campus Recycling Points:** Establish designated recycling points with clear signage for paper, plastic, glass, and other recyclable materials. Ensure easy access to these recycling stations throughout the campus.
- ❖ **Reusable Products Promotion:** Encourage the use of reusable products, such as water bottles, coffee cups, and shopping bags, by distributing eco-friendly alternatives to students and staff.
- ❖ **Celebrate Green Achievements:** Recognize and celebrate the contributions of students, faculty, and staff towards sustainability goals. Creating a culture of appreciation for green actions will foster greater participation and enthusiasm for future initiatives.

## 7. Conclusion

The Green audit, also known as Environmental audit, plays a crucial role in inspecting the environmental management activities of our college while promoting awareness and understanding of the auditing process among all stakeholders. It is an ongoing process necessary to ensure long-term environmental sustainability on campus. The management is committed to transforming the campus into a green campus, and the green audit has successfully raised staff and students' awareness regarding the institute's dedication to society and the significance of promoting green practices and conserving water and energy resources. Through the green audit, the college has identified areas of strength and areas that require further improvement in its environmental practices. It has provided valuable insights into existing conservation efforts, helping the college acknowledge its achievements while also recognizing the challenges that lie ahead. The commitment to a greener campus has fostered a sense of responsibility and ownership among staff and students alike, encouraging them to actively participate in eco-friendly initiatives.

Furthermore, the green audit has acted as a catalyst for engaging the entire college community in discussions and actions centered around sustainability. It has sparked meaningful conversations about environmental conservation, inspiring a collective effort towards adopting greener lifestyles both within the campus and beyond. The results and recommendations from the green audit will serve as a roadmap for the college's future action plans and environmental policies. It will guide decision-makers in developing more effective strategies to reduce the college's ecological footprint, conserve natural resources, and preserve biodiversity. The college's commitment to environmental stewardship will not only have a positive impact on the immediate campus but also extend its influence to the local community. By setting an example of responsible environmental practices, the college can inspire neighbouring



institutions, businesses, and residents to follow suit, contributing to a greener and more sustainable region.

In conclusion, the green audit has been an eye-opening experience for Thomas Jones College, instilling a genuine commitment to environmental conservation within its academic and administrative spheres. With ongoing efforts and collective dedication, the college can create a greener, more eco-conscious campus that not only benefits its present community but also leaves a positive and lasting impact on future generations. Through collaborative action and a shared vision, the college can stand as a shining example of responsible environmental practices, contributing to a healthier, more sustainable future for all.

A handwritten signature in purple ink, appearing to be 'P. B. Singh', written over a yellow rectangular background.

**Principal Investigator**

A handwritten signature in purple ink, appearing to be 'S. J. Singh', written over a yellow rectangular background.

Principal  
Thomas Jones Synod College  
Jowai