



SHREE SHREE LAKSHMI NARAYAN TRUST MAHILA MAHAVIDYALYA
(CONSTITUENT UNIT OF BINOD BIHARI MAHATO KOYLANCHAL UNIVERSITY, DHANBAD, JHARKHAND)



DRAFT
GREEN AUDIT REPORT
2023-2024

PREPARED BY
YUGANTAR BHARATI, RANCHI



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AUDIT CERTIFICATE

S.S.L.N.T. Mahila Mahavidyalaya, Dhanbad, Jharkhand

Has been assessed by ***Yugantar Bharati, Ranchi*** for the comprehensive study of environmental impacts on Institutional working framework to fulfill the requirements of

GREEN AUDIT

Academic Year 2023-2024

The Green Initiatives carried out by the institution have been verified on the report submitted and was found to be satisfactory.

The efforts taken by the management, faculty, students and staff members for environmental sustainability are noteworthy.

LEAD AUDITOR

17th February, 2024
Date of Audit

Acknowledgment

Yugantar Bharati, Ranchi would like to thank the management of Shree Shree Lakashmi Narayan Trust Mahila Mahavidyalaya, Dhanbad for assigning the important work of Green Audit.

We would like to thank Dr.(Mrs.) Sharmila Rani, Principal for reposing faith on us and giving us the opportunity to evaluate the environmental performance of the campus.

We are also thankful to members of the College Green Audit Committee, and especially to Dr. Monalisa Saha, Audit Coordinator for taking pains in preparing Green Survey Report.

We appreciate the cooperation received from staff member of the college during audit process. Special thanks to students and faculty members, who participated in the survey conducted by the audit team.

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DISCLAIMER

The Green Survey conducted by the college has been audited for the academic year 2023-24 by Yugantar Bharati, Ranchi.

The Green Audit Report is based on the input provided in the survey document submitted by the representatives of the college. The conclusions drawn in the Audit Report hinges on information obtained from the college authorities, staff and students and explanations received from the Principal and Green Audit Coordinator, which to the best of our knowledge and belief were necessary for examination.

The Audit Report is compiled in good faith on information gathered and Yugantar Bharti, Ranchi shall accept no representation against the report or shall be responsible for any direct or indirect loss arising from any use of information or statement contained in the report.

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4. AUDIT PARTICIPANTS

Members of Green Audit Committee of College



- | | |
|---------------------------|--------------------|
| 1. Dr. Sharmila Rani | Principal |
| 2. Mr. Bimal Minz | Professor Incharge |
| 3. Dr. Sunita Hembrom | Member |
| 4. Dr. Monalisa Saha | Co- Ordinator |
| 5. Miss. Binita Soreng | Member |
| 6. Dr. Priya Aradhya Ekka | Member |

External Members

- | | |
|-----------------------|------------------------------------|
| 1. Dr. J.N. Singh | Principal (R.S.P. College, Jharia) |
| 2. Dr. Sunanda Kumari | Associate Professor |

Auditors of Yugantar Bharati

- | | |
|-----------------------|-------------------|
| 1. Dr. M.K. Jamuar | Hony. Director |
| 2. Shri Anshul Sharan | Working President |
| 3. Shri Satyam Kumar | Scientist |
| 4. Shri Akash Khalko | Scientist |

5. CONCEPT AND CONTEXT OF GREEN AUDIT

INTRODUCTION

The term “Green” means eco-friendly or not damaging the environment. This can acronymically be called as “Global Readiness in Ensuring Ecological Neutrality” (GREEN). Green accounting can be defined as systematic identification, quantification, recording, reporting & analysis of components of ecological diversity & expressing the same in financial or social terms. “Green Auditing”, an umbrella term, is known by another name “Environmental Auditing”. There is a provision of green audit in college campus. As per the suggestions made by IQAC, Botany department is given the responsibility to do green audit. A report on green audit has been prepared by the department of botany S.S.L.N.T Mahila Mahavidyalaya, Dhanbad. This college was established in 1955 and is the only women’s college of the district and accredited with Grade ‘B’ by NAAC. Total area of the college main campus is 3.24 acres, of which almost 25 percent is covered by herbs, shrubs and trees, including open landed space. The plants have been systematically identified by the green audit committee. There are more than 20 plant species were audited. Extra efforts have been taken by the college to create environment consciousness amongst students. Plantation is encouraged by principal and faculties of all departments to increase greenery and reduce carbon emission effects.

The policy of the Government of India under the leadership of our Honourable Prime Minister Shri. Narendra Modi has also been in this direction, by declaring the mission of ‘Swachh Bharat Abhiyan’, whose voice resonates with the message of “Green Campus, Clean Campus” mission launched by the University Grants Commission for all higher educational institutes. The National Assessment and Accreditation Council (NAAC), which is an autonomous body funded by the University Grants Commission of Government of India, has made ‘Environmental Consciousness’ mandatory criterion (Criterion VII) for grading educational institutes. At present the state of Jharkhand has been pursuing the policy of Sustainable development and at this juncture green audit becomes part and parcel of the management of the campus with due scope to take up academic activities within the close circles of environmental conservation and management.

5.1 SCOPE AND GOALS OF GREEN AUDITING

Green audits serve to identify opportunities to sustainable development practices, enhance environmental quality, improve health, hygiene, and safety, reduce liabilities, and save money and achieve values of virtue. Environmental audits can be a highly valuable tool for college in a wide range of ways to improve their environmental and economic performance and reputation - while reducing wastages and operating costs. Once a baseline data is prepared after the auditing process, the data can serve as a point of departure for further action in campus greening. It will also help the University to compare its programs and activities with other peer institutions, identify areas for improvement and prioritize the implementation of future projects. The data will also provide a basis for calculating the economic benefits of resource conservation projects by establishing the current rates of resource use and their associated costs. The aim of green auditing is to help the institution to apply sustainable development practices and to set examples before the community and young learners.

5.2 General and Specific Objectives of Green Auditing

The general objective of green audit is to prepare a baseline report on biodiversity and other resources, measures to mitigate resource wastage and improve resource quality and sustainable practices. The specific objectives are:

1. To prepare a checklist of flora and fauna diversity in and around the college campus.
2. To assess the quantity of water usage within the college campus.
3. To suggest sustainable energy usage and water conservation practices.
4. To find out various sources of organic and solid waste generation and mitigation possibilities.
5. To inculcate values of sustainable development practices through green audit mechanism.

Based on the available data, sampling and information provided by the college staff this report has been prepared and recommendations for betterment of campus environment are provided.

5.3 Audit Process

Pre-audit activities:

- 1) The sites/area/division that are audited, need to be selected and determined.
- 2) The audited were informed of the date of the audit enabled them to adjust and become used to the concept.
- 3) The audit scope identified. The auditee was consulted when establishing the scope.
- 4) The audit plan was designed in such a way that it accommodated changes based on information gathered during the audit and effective use of resources.
- 5) Green Audit Committee and assignment of responsibility were established.

Onsite Audit Activities:

- 1) The opening meeting is the first step between the Green Audit team and department of Botany. In this meeting purpose of audit, the procedure and the time schedule were discussed.
- 2) Site inspection is the second step for onsite activity. In this step the audit team discovered matters which are important to the audit but which were not identified at the planning stage.
- 3) Gathering audit evidence i.e. collecting data and information using audit protocol.
- 4) Communicating with the staff of the auditee to obtain most information.
- 5) Evaluated the audit evidence against the objectives established for the audit.
- 6) An exit meeting to explain audit finding.

Procedure Followed:

- 1) Identification of Plant and Animal & Bird species and Bio diversity.
- 2) Analysis of Water quality and Usage.
- 3) Analysis of Energy consumption and cost.
- 4) Analysis of waste disposal and generation.
- 5) Suggesting recommendation to improve the same.

6. OVERVIEW OF THE COLLEGE

SSLNT Mahila Mahavidyalaya, Dhanbad was established in 1955. The College had a modest beginning as a joint effort by the social workers of Dhanbad, Shri Hirendra Nath Chatterjee & ShriMriganka Shekhar Mukherjee. The college initially started functioning in a single room with only 9students and the foundation stone of the college was laid by His Excellency the Governor & Chancellor of Bihar Hon. Sri. Anant S. Iyengar on August 27, 1962. The present campus on L.C.Road was made available with the Trust established by the leading Industrialists Shri. Chanchani & Shri. Tara. Three hostel and a school bus was made available to the students along with otherfaculties. The main building of College was inaugurated by the Hon. Late Smt. Indira Gandhi on11th July 1965, the then Information & Broadcasting Minister of India. The College was affiliatedto Bihar University in 1960. In 1961 the College became a part of the Ranchi University. In 1975the College became a constituent unit of the Ranchi University. In 1992 the College was included inthe newly founded Vinoba Bhave University. The Science department of the college startedfunctioning from 1966 and the Commerce department came into existence in 1983. Later, otherpostgraduate programmes were also started in 1984. Many Vocational Courses along with B.Ed.Courses were introduced in 2006-2007 with the objective of all round development in educationaleligibility of the students. The dream of a premier Institute for Women's education now became reality in Dhanbad as the College developed and progressed academically in a spectacular manner. With the celebration of the Golden Jubilee in 2005 a milestone in the history of any institution, S.S.L.N.T. Mahila Mahavidyalaya, Dhanbad, has a glorious heritage of continuous excellence in the field of Women's education. In a span of less than sixty years the College has established itself as one of the leading Women's College in Jharkhand.

COLLEGE BUILDING

Name of Building	Activity Type	Area (in Sq.ft.)
1. Administrative Building	Principal Chamber, Office, Examination Dept., Accounts Section, Visitors Room	17440.00
2. Teaching Unit		
Ground Floor	Seminar Hall & Classrooms	9847.00
First Floor	Classrooms + Laboratories	12149.50
Second Floor	Classrooms + Laboratories	8871.00
Third Floor	Classrooms	7099.00
3. Beauty & Wellness Building	Office + Classrooms	1581.00
4. B.Ed. Building	Office + Classrooms	10875.00
5. Hostel (Saraswati Hostel & Nitai Niwas)	Hostel	18444.00
6. Library	Library + Reading Room	3600.00

Apart from above the following are available

- Canteen : 01
- Teachers quarter : 08
- Non-teaching staff quarter : 10

GENERAL INFORMATION ABOUT COLLEGE

The college offers 18 UG programmes and 03 PG programmes. 2014 students are enrolled in Arts stream, 717 students are enrolled in Science stream and 697 students are enrolled in Commerce stream. The college has almost 3428 students on its rolls in various programmes. There are 20 permanent faculty members and 10 contractual faculty members serving in various disciplines of the college. There are 15 permanent non-teaching staff members and 04 contractual non-teaching staff members working in the college office and different departments.

FACILITIES AVAILABLE IN THE COLLEGE

1. Rooftop solar panels:

This renewable resource is a clean and safe alternative energy solution. Installation of rooftopsolar panels in the large amount of empty rooftop space has inherently avoid the potential landuse and environmental concerns.

2. RO water purifier with cooler:

Four RO water purifier with cooler have been installed in the college campus for students and teachers.

3. Solar water pump:

To meet the water needs in the college campus, one solar water pump has been installed.

4. Dust-bins and waste disposal system

The college is equipped with dust-bins in the place of needs and proper waste disposal system.

5. Clean toilet complex:

Academic building has toilet complex containing sixteen toilets in each floor. Sanitary and hygiene of the toilet complex is reviewed regularly.

6. Sanitary Vending Machine:

Sanitary vending machine has been installed as a student facility.

7. Sanitary Disposable Machine:

Sanitary disposal machine has been installed keeping in mind the proper disposal of the waste.

7. GREEN AUDIT ANALYSIS

7.1 General Information

7.1.1 Green Audit conducted earlier : **No**

7.1.2 Total Strength of the College

Students

Male: 0 Female: 3428 Total: 3428

Teachers (incl. need based teachers & B.Ed teachers)

Male: 5 Female: 33 Total: 38

Non-teaching staff (incl. contractual)

Male: 18 Female: 8 Total: 26

Total Strength (Head Count)

Male: 23 Female: 3469 Total: 3492

7.1.3 Total number of working days in the campus

180 days per year

7.1.4 Location of the campus

Luby Circular Road, Hirapur, Dhanbad.

7.1.5 Facilities available in the college

Garden Area	Available
Play Ground	Available
Kitchen	Available
Toilets	Available
Canteen	Available
Hostel	Available
Common Room	Available
Library	Available
Teachers Quarter	Available
Staff Quarter	Available

7.1.6 Utilities near the college

Municipal Dump Yard	Available
Public convenience	Available
Open drain	Available
Sewer line	Available
Municipal water line	Available
Bus/Railway Station	Available
Market/Shopping complex	Available
Auto/e-rickshaw Stand	Available

7.2 Water and Waste Water Management

7.2.1 Water uses in the college (approx. values)

Drinking	–	1000 litre
Gardening	–	5000 litre
Kitchen & toilets	–	12000 litre
Hostel	–	2000 litre

7.2.2 Water storage facility

	<u>No.</u>	<u>Capacity</u>
Overhead tank	4	1,000 L each
Overhead tank	3	2,000 L each
Overhead tank	1	6,000 L
Underground tank	1	10,000 L

7.2.3 Source of water

Municipal Water supply	
Bore well	- 2
Well	- 1 (dry)

7.2.4 Rain Water harvesting system **Not available**

7.2.5 Waste water disposal policy

The waste water from canteen, toilets, hostel, bathrooms & laboratories exit from covered drains and flows into the municipal sewer line.

7.2.6 Waste water analysis

The result of the chemical analysis of waste water is attached with this report.

7.3 Waste Management and Recycling

7.3.1 Categories of waste generated

Solid waste, Canteen waste, paper, plastic, laboratory waste, horticulture waste, e-waste etc.

7.3.2 Approximate amount of waste generated per day

Paper and tree droppings	:	5-8 kg/day (approx.)
Plastic	:	< 100g / day (approx.)
Hazardous waste	:	Negligible
Others	:	Occasionally metal scraps + wood

7.3.3 Waste management policy of the college

- Food waste and horticultural waste is collected in pits for vermicomposting.
- Single-use plastic is discouraged in the campus.
- Non-hazardous Laboratory wastes (liquid) is collected in soak pit.
- Dust bins are placed at strategic locations for collection of dry and wet waste.
- The residual wet and dry waste is collected by the municipal corporation.
- E-Waste collection and management is through authorized vendors.
- Wood and scrap metals are sorted separately and stored for disposal through tender process.
- Sanitary pad disposal machine is installed in the campus

7.4 Electricity and Other Sources Of Energy

7.4.1. Sources of energy in the campus

1. **Electricity:** Provided by Jharkhand Bijli Vitran Nigam Limited.
2. **Solar power:** 110 KW capacity solar panel installed
3. **LPG:** On an average 1 LPG each (19.5 kg) for home science and chemistry department is required for practical work. Office canteen uses induction cooking top.
4. **Diesel Generator Set:** 2 (15 KVA & 25 KVA) On an average 100 liters of diesel is spent on the two dg sets available in the college per month.

Note: On an average approximately 40,000 KWH unit of electricity is consumed per month. During the last financial year the total expenses incurred was only around Rs. 1,47,000.00 due to solar panels.

7.4.2. Energy saving policy of the college

- The college has installed solar panels of 10 KW capacity attached to 240 batteries. The energy generated by solar panels is sufficient to meet the needs of the college. Efforts are being made to connect the panel with the common grid of Jharkhand Bijli Vitran Nigam Limited.
- The buildings of college are designed in such a way that natural light is available in all the rooms for most part of the day.
- The ventilation of rooms is such that proper air flow is maintained and use of fan is minimal.
- Energy saving LED bulbs have been provided for lightening purpose.

7.5. Air Quality

Dhanbad city is notorious for air pollution. However, ambient air in the college campus always shows less air pollution as compared to the city due to location of the college and the green campus. The air quality measured on the day of the day audit was found to be satisfactory.

Date of sampling 17.02.2024

<u>Parameters</u>	<u>Result</u>	<u>Limit</u>
Particulate Matter (PM-10)	78.2 $\mu\text{g}/\text{m}^3$	100
PM 2.5	31.8 $\mu\text{g}/\text{m}^3$	60
SOx	14.0 $\mu\text{g}/\text{m}^3$	80
NOx	34.6 $\mu\text{g}/\text{m}^3$	80
NH ₃	62.7 $\mu\text{g}/\text{m}^3$	400
Ozone	3.1 $\mu\text{g}/\text{m}^3$	180 (1 hr.)

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7.6 Status Of Flora and Fauna

Adequate number of plants, comprising of full-grown trees, small trees, and hedge plants are available in the campus. There is also grass cover in most of the unplastered open area. A small garden is also available. The number of potted plants is quite high because of the policy adopted by the Principal.

A. MAJOR TREES AND PLANTS IN THE CAMPUS

<u>Common Name</u>	<u>Scientific Name</u>
1. Neem	Azadirachta indica
2. Mango	Magnifera indica
3. Peepal	fiens religiosa
4. Areca Palm	Dypsis lutescens
5. Teak	Tectona grandis
6. Black plum	Syzygium cumini
7. Bel	Aegle marmelos
8. Guava	Psidium guajava
9. Banana	Musa acuminata
10. Garden croton	Codiaem variegatum
11. Jungle flame	Ixora spp.
12. Dracaena	Dracaena fragrans
13. Balfouriana	Polyscias balfouriana
14. Thuja	Thuja spp.
15. Snake plant	Dracaena trifafciata
16. False Ashoka	Monoon longifolium
17. Palm roebelenii	Washington robusta
18. Ruffled Fan palm	Licuala grandis
19. China rose	Hibiscus rosa-sinensis
20. Broadleaf Gardenia	Gardenia latifolia

B. FAUNA IDENTIFIED IN CAMPUS

<u>Common Name</u>	<u>Scientific Name</u>
1. Pale Grass Blue Butterfly	Pseudozizeenia maha
2. Plains Cupid butterfly	Luthrodes pandava
3. Plains tiger butterfly	Danans chrysippus
4. Common Pierrot	Castalis rosimon
5. Marmalade Hover fly	Episyrphus balteatus
6. Coromandel Marsh dart	Ceriagrion coromandelianum
7. Chalky Percher	Diplacodes trivialis
8. Red cotton Stainer	Dysdercus cinglatus
9. Cobalt milkweed beetle	chrysochus cobaltimus
10. Carpenter ant	Componotus compressus
11. Acrobat ant	Cremogaster spp
12. Lynx spider	Oxyopes Javanus
13. Giant crab spider	Heteropoda venatoria
14. Oriental Garden Lizard	Calotes versicolor
15. House crow	Crovis splendens
16. Common myna	Acridotheres tristhis
17. Domestic Pigeon	Columbalivia domestica
18. Indian Palm Squirrel	Funambulus palmarum

8. AUDIT REPORT

8.1 Water Audit

Water is an important natural resource and is available naturally depending on the climate and topographic features. All organisms are dependent on water for their living. Although water is available in nature, portable water is not available freely for human consumption. There have been many practices to conserve water so that it can be readily available for human use. It has been noticed that due to unsustainable use of water resources there is contamination and depletion of the ground water and also water which is available in various reservoirs like lakes, ponds, streams etc. which is becoming more alarming. Therefore it becomes increasingly important to conserve protect and manage the water resources availability and usage so that it is sustainably used within the university campus. Water auditing is conducted to evaluate the quality, availability and usage of water; the facilities available and methods adopted to revitalize and use it so that the resources are intact without leading to deterioration.

8.2 Energy Audit

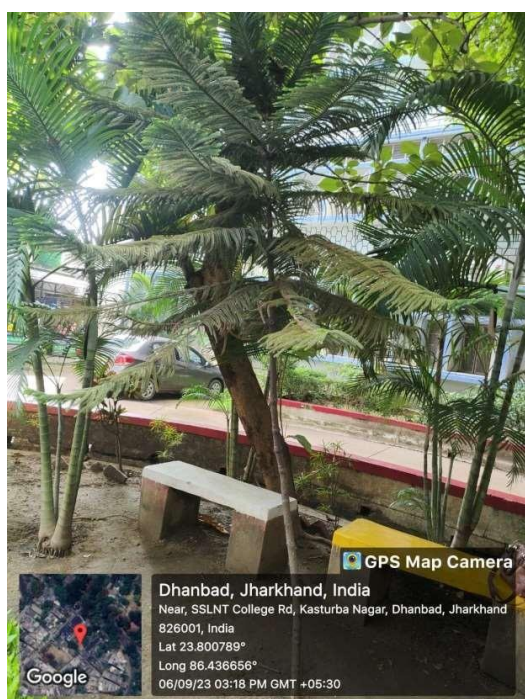
According to Energy Conservation Act, 2001, Energy Audit is the verification, monitoring, and analysis of the use of energy including submission of a technical report containing recommendations for improving energy efficiency with cost-benefit analysis and an action plan to reduce energy consumption. All the buildings of the college are designed and constructed in such a way that most of the time during day time no electricity is consumed for lighting of tube lights and other electric lights. Proper day light and ventilation facilities are available for every building.

8.3 Flora And Fauna Audit

- Ensuring the rich biodiversity in the green campus is an important parameter which reflected the real-time ecosystem. Plants are indicators for assessing the varying levels of environmental quality. In general, plants improve the outdoor air quality with increased oxygen levels and reduced temperature and carbon-di-oxide. The green and varying colour of the flowering plants improve the ambience of the environment. The record on maintenance of the plant biomass and its management are important with respect to green campus initiatives. The existence of such plants and birds in the green campus may be recorded for the rich flora and fauna which are being considered as a value addition to the campus.
- Observations revealed the following commonly available native as well as wild plant species in the college campus of SSLNT Mahaila Mahavidlaya, Dhanbad campus:
- Neem (*Azadirachta indica*), Mango (*Mangifera indica*), Guava (*Psidium guajava*), Coconut (*Cocos nucifera*), Hibiscus (*Hibiscus rosa sinensis*), Royal poinciana (*Delonix regia*), Jackfruit (*Artocarpus heterophyllus*), False Ashoka (*Monoon longifolium*), Fig (*Ficus racemosa*), Sacred Fig (*Ficus religiosa*), Singapore Cherry (*Muntingia calabura*), Yellow Flame tree (*Peltophorum pterocarpum*), Orchid tree (*Bauhinia variegata*), Weeping fig (*Ficus benjamina*), Spider plant.
- The predominant families of various monocot and dicot plants found in the SSLNT Mahaila Mahavidlaya, Dhanbad campus are Arecaceae, Fabaceae, Anacardiaceae, Myrtaceae, Vitaceae, Moraceae, Muntingiaceae, Proteaceae, Annonaceae and Lauraceae.
- Following fauna were recorded in the college campus:
- Butterflies: *Pseudozizeeria maha* (Pale Grass Blue), *Luthrodes pandava* (Plains cupid), *Danaus chrysippus* (Plain Tiger), *Castalius rosimon* (Common Pierrot), *Episyrrhus balteatus* (Marmalade Hover Fly), *Ceriagrion coromandelianum* (Coromandel marsh dart), *Diplacodes trivialis* (Chalky percher), *Dysdercus cingulatus* (Red cotton stainer), *Chrysochus cobaltinus* (Cobalt milkweed beetle), *Camponotus compressus* (Carpenter ant), *Crematogaster* sp. (Acrobat ant), *Oxyopes javanus* (Lynx spider), *Heteropoda venatoria* (Giant crab spider), *Calotes versicolor* (Oriental garden lizard), *Crovis splendens* (House crow), *Acridotheres tristis* (Common myna), *Columba livia domestica* (Domestic pigeon) and *Funambulus palmarum* (Indian palm squirrel).

PLANT DIVERSITY IN COLLEGE CAMPUS

A survey was carried out to find plant diversity in the college campus. The survey was focused on the diversity of plants on the basis of their classification and economic importance. Following are some of the plants which are identified in the survey which reflect rich plant diversity in college campus





Botanical Name: *Codiaeum variegatum*

Common Name: Garden Croton Family: Euphorbiaceae

Botanical Name : *Araucaria*

Papua continental plants known for their vibrant, colorful Araucaria tree is commonly known as the "Norfolk Island Pine." and it and belongs to the family Araucariaceae.

This family includes several species of evergreen coniferous trees, and Araucaria is one of the prominent genera within this family.

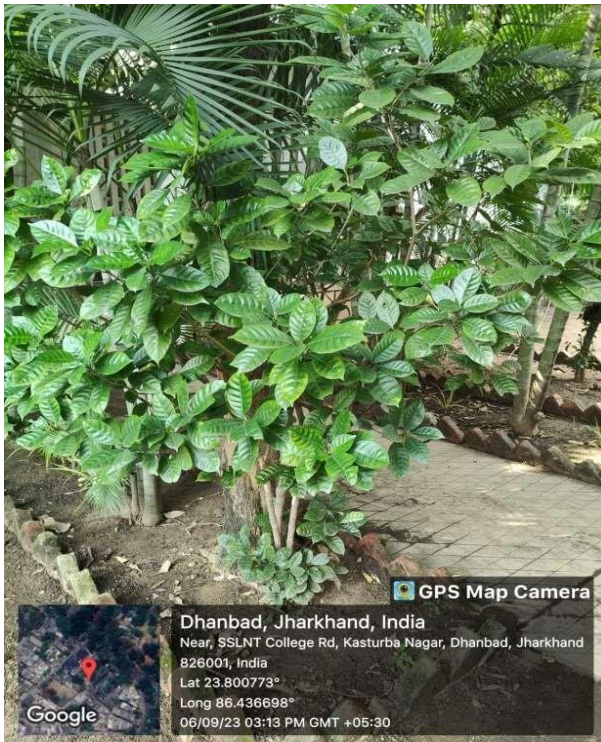


Botanical Name: *Cascabela Thevetia*

The common name for *Cascabela thevetia* is "Yellow Oleander" or "Lucky Nut." Its botanical name is "*Thevetia peruviana*,"

Botanical Name: *Dypsis lutescens*

known for its striking yellow, trumpet-shaped flowers and is native to tropical and subtropical regions. The common name for *Areca palms* is simply "Areca palm." They belong to the family *Arecaceae*, which is also known as the palm family. *Areca palms* are popular as ornamental plants and are commonly grown in tropical and subtropical regions for their attractive fronds and elegant appearance.

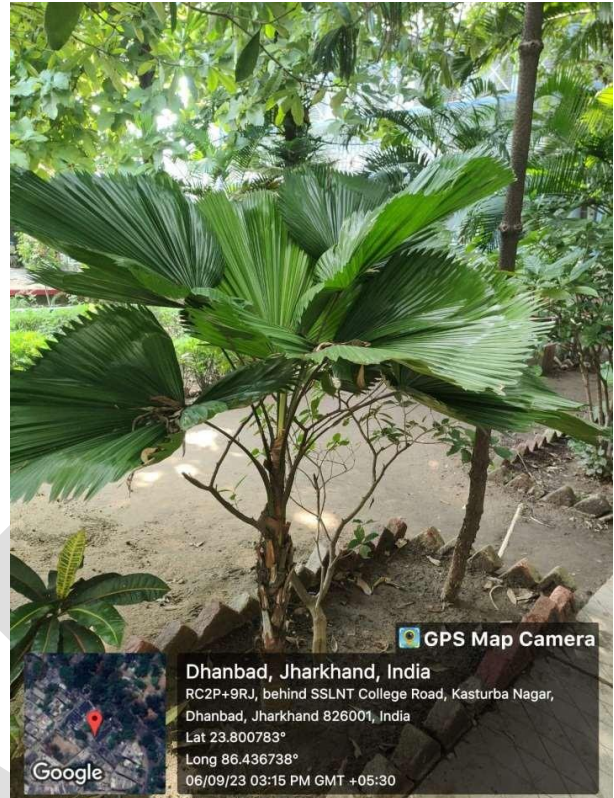
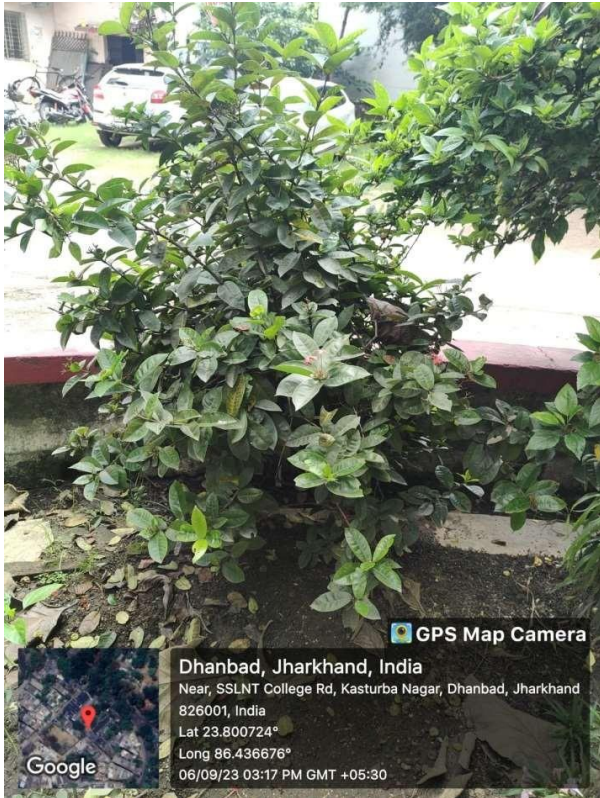


Botanical Name: Gardenia latifolia

Commonly known as the "Broadleaf Gardenia." Gardenia plants belong to the family Rubiaceae. These plants are prized for their fragrant and attractive white flowers, and they are often grown for ornamental purposes in gardens and as indoor houseplants.

Botanical Name: Hibiscus rosa-sinensis

The botanical name for Hibiscus is "Hibiscus." Hibiscus is also commonly known by the same name. It belongs to the family Malvaceae. Hibiscus is a diverse genus that includes many species of flowering plants, and they are well-known for their large, colorful, and trumpet-shaped flowers.



Botanical Name: Ixora

Common Name: Ixora, Jungle Geranium, Flame of the Woods.

Family: Rubiaceae

Ixora plants are popular ornamental shrubs or small trees, and they are cultivated for their vibrant, tubular flowers, which come in a range of colors, including red, orange, pink, and yellow. They are commonly used in landscaping and gardens in tropical and subtropical regions.

Botanical Name: Licuala Grandis

Licuala grandis is commonly known as the "Ruffled Fan Palm" due to the distinctively ruffled appearance of its leaves.

Family: Arecaceae (Palm family)

The Ruffled Fan Palm, Licuala grandis, is a beautiful palm species native to rainforests in Southeast Asia. It is appreciated for its attractive, fan-shaped leaves and is often used as an ornamental plant in tropical and subtropical gardens and landscapes.



Botanical Name: Washingtonia Robusta

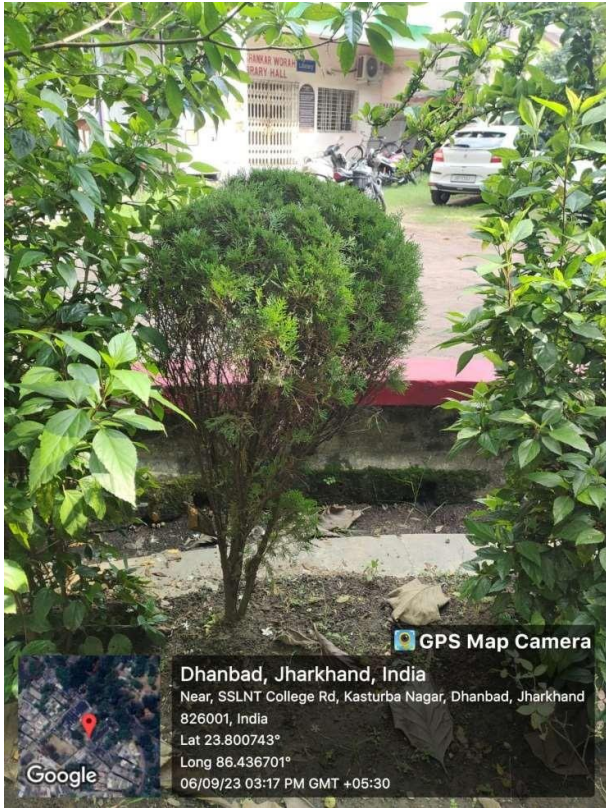
The common name "Palma Robelina" is typically used to refer to the Mexican Fan Palm, which belongs to the genus *Washingtonia*. Specifically, it is often associated with the *Washingtonia robusta* species.

Family: *Arecaceae* (Palm family)

Mexican Fan Palms are tall and slender palm trees with large, fan-shaped leaves and are commonly planted as ornamental trees in various regions due to their elegant appearance and adaptability to a range of climates.

Botanical Name: Monoon longifolium

Monoon longifolium, the false ashoka, also commonly known by its synonym *Polyalthia longifolia*, is an Asian small tree species in the family *Annonaceae*. It is native to southern India and Sri Lanka. It is known for its long, pinnate leaves and is often used for its shade-providing qualities in landscaping and gardens.



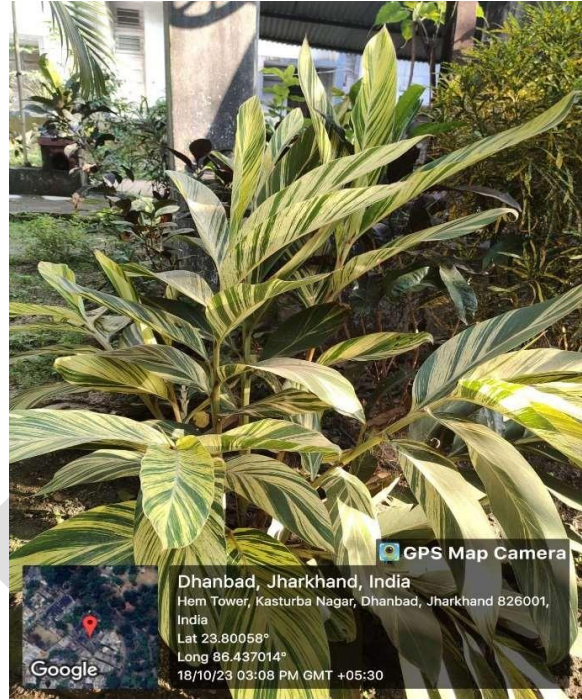
Botanical Name: Thuja

Common Name: Thuja or Arborvitae
 Family: Cupressaceae

Arborvitae trees and shrubs, belonging to the Thuja genus, are popular in landscaping and ornamental horticulture due to their attractive, dense foliage and ease of cultivation

Botanical Name: Dracaena trifasciata

Dracaena trifasciata, commonly known as the "Snake Plant" or "Mother-in-Law's Tongue," is a popular indoor plant. It belongs to the family Asparagaceae and is native to West Africa. Snake plants are known for their distinctive upright leaves that are typically dark green with light gray-green horizontal stripes, resembling the patterns on a snake's skin. These plants are appreciated for their air-purifying qualities and their ability to thrive in low-light conditions, making them a common choice for indoor spaces.



***Botanical Name: Polyscias
Balfouriana***

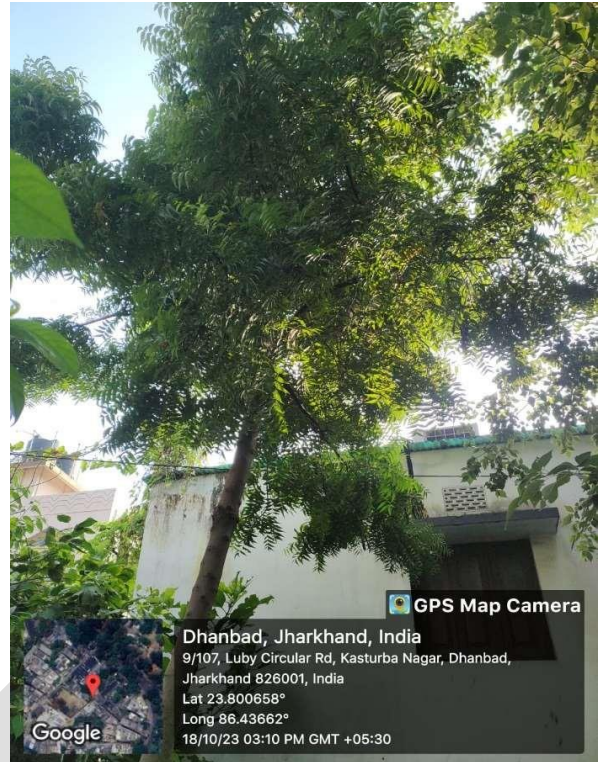
It is a specific species within the Polyscias genus and is commonly known as Balfour Aralia or Balfouriana. This plant is prized for its attractive, glossy green foliage and is often used as an ornamental houseplant.

Polyscias plants belong to the Araliaceae family, which is known as the aralia or ginseng family. This family includes a wide range of plants, including various species of shrubs and trees, many of which are used ornamentally.

***Botanical Name: Dracaena
Fragrans***

Dracaena is a genus of plants known for their attractive foliage and ease of care. A common name for plants is Dracaena. Dracaena plants belong to the Asparagaceae family, which is also known as the asparagus family. This family includes a wide range of plants, including not only Dracaena but also asparagus, sansevieria (snake plant), and yucca.

Dracaena plants are valued for their air-purifying properties and adaptability to various indoor conditions.



Botanical Name: Ixora spp.

Ixora, also known as Flame of the Woods or Jungle Flame, is a genus of flowering plants.

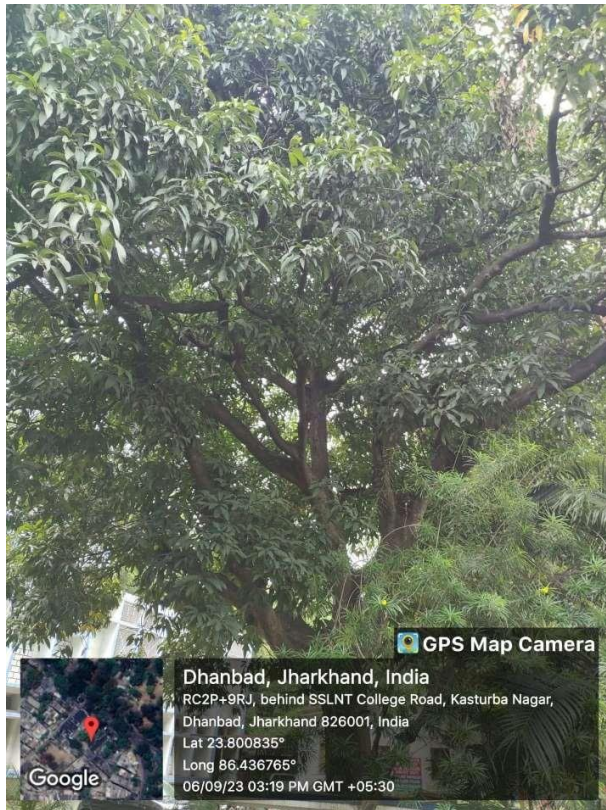
Common Name: Ixora

Botanical Name: Ixora spp.

Ixora belongs to the family Rubiaceae, which is a large family of flowering plants that includes a wide range of species, many of which are found in tropical regions.

Botanical Name: Azadirachta indica

Azadirachta indica, commonly known as margosa, neem tree or Indian lilac, is a tree in the mahogany family Meliaceae. It is one of two species in the genus Azadirachta. It is native to the Indian subcontinent and to parts of Southeast Asia, but is naturalized and grown around the world in tropical and subtropical areas.



Botanical Name: Magnifera Indica

The mango belongs to the Anacardiaceae family, which is also known as the cashew or sumac family.

The mango is a tropical fruit tree native to South Asia but is now cultivated in many tropical and subtropical regions around the world. It is known for its sweet, juicy, and fragrant fruit, which is widely enjoyed both fresh and in various culinary applications. Mangoes are often referred to as the "king of fruits" due to their popularity and delicious taste.

Botanical Name: Ficus Religiosa

The Peepal tree, also known as the Sacred Fig. The Peepal tree belongs to the Moraceae family, also known as the mulberry family. This family includes a wide variety of plants, including figs, mulberries, and breadfruit. It is a species of fig tree and is revered in several cultures for its religious and cultural significance.



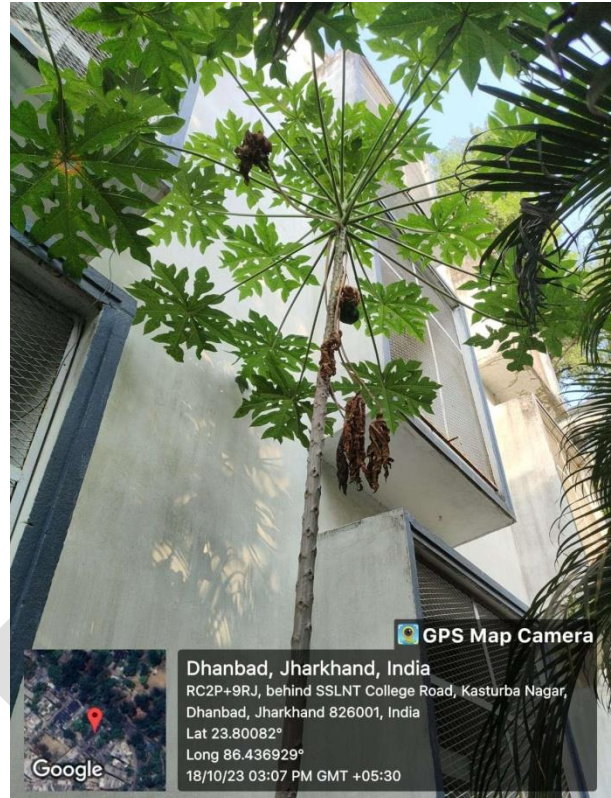
***Botanical Name: Codiaeum
Variegatum***

The plant is commonly known as the Garden Croton due to its vibrant and diverse leaf patterns. Garden Croton belongs to the Euphorbiaceae family, which is also known as the spurge family. This family includes a wide range of plants, including many succulents, shrubs, and trees.



***Botanical Name: Dypsis
Lutescens***

Common name is Areca Palm. The Areca Palm belongs to the Arecaceae family, which is also known as the palm family. This family includes a wide variety of palm species, many of which are found in tropical and subtropical regions. This palm species is native to Madagascar but is widely cultivated in many tropical and subtropical regions.

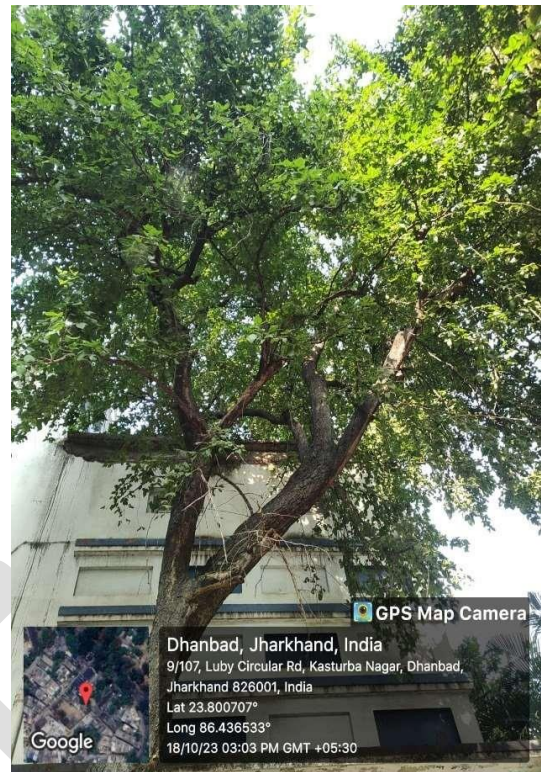


Botanical Name: Tectona grandis

The plant is commonly known as the Teak Wood is a tropical hardwood tree species in the family Lamiaceae. It is a large, deciduous tree that occurs in mixed hardwood forests. *Tectona grandis* is native to south and southeast Asia, mainly Bangladesh, India, Indonesia, Malaysia, Myanmar, Thailand and Sri Lanka

Botanical Name: Carica Papaya

Common name is Papaya. The papaya or pawpaw is the plant species *Carica Papaya*, one of the 21 accepted species in the genus. *Carica* of the family Caricaceae. It is grown in several countries with a tropical climate. India produces 38% of the world's supply of papayas.

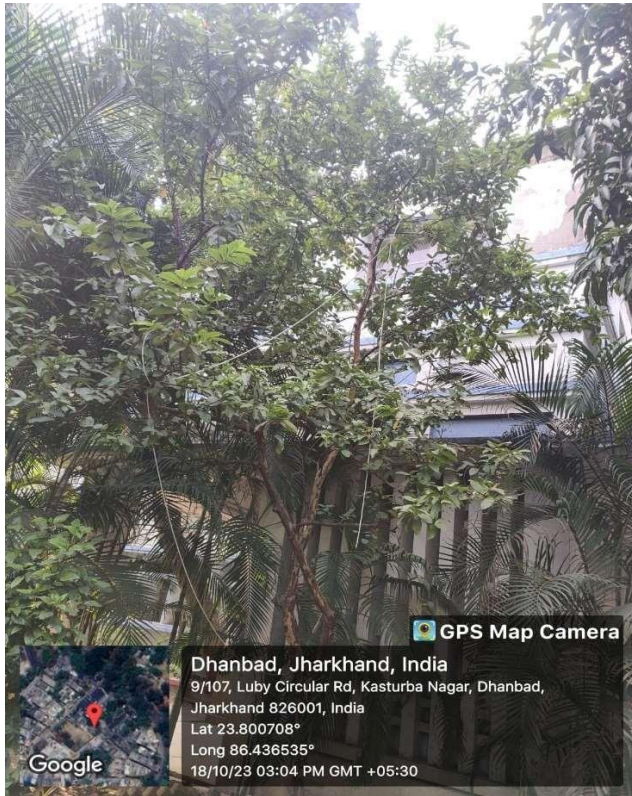


Botanical Name: Syzygium cumini

Syzygium cumini, commonly known as Malabar plum, Java plum, black plum, jamun, jaman, jambul, or jambolan, is an evergreen tropical tree in the flowering plant family Myrtaceae, and favored for its fruit, timber, and ornamental value.^[5] It is native to the Indian subcontinent and Southeast Asia, including Myanmar, SriLanka, Bangladesh and the Andaman Islands.

Botanical Name: Aegle marmelos

Aegle marmelos, **Plant family:** Rutaceae, commonly known as, bael, also Bengal quince, golden apple, Japanese bitter orange, one apple or wood apple, is a species of tree native to the Indian subcontinent and Southeast Asia. The fruits of *Aegle marmelos* are rich in flavonoids, terpenoids, carotenoids and coumarins.



Botanical Name: Psidium guajava

The plant is commonly known as the Guava is a tropical hardwood tree species in the family Lamiaceae. It is a large, deciduous tree that occurs in mixed hardwood forests. *Tectona grandis* is native to south and southeast Asia, mainly Bangladesh, India, Indonesia, Malaysia, Myanmar, Thailand and Sri Lanka.

Botanical Name: Musa acuminata

Common name is Banana. *Musa acuminata* is a species of banana native to Southern Asia, its range comprising the Indian Subcontinent and Southeast Asia. *Musa acuminata* belongs to section *Musa* (formerly *Eumusa*) of the genus *Musa*. It belongs to the Family Musaceae of the Order Zingiberales.

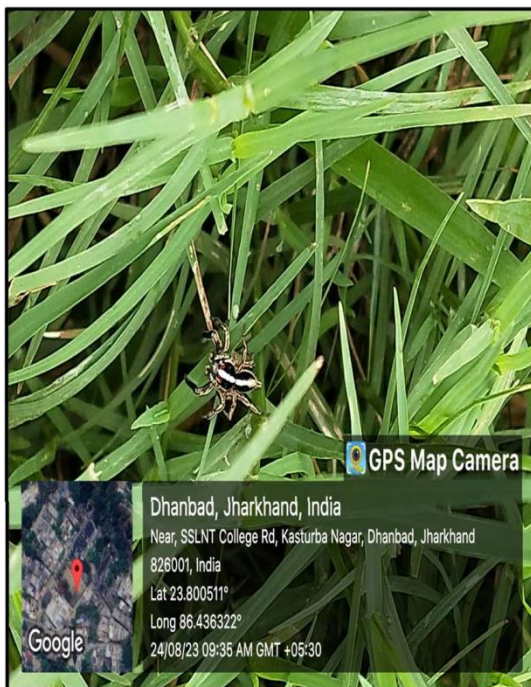
FAUNA IN THE COLLEGE CAMPUS



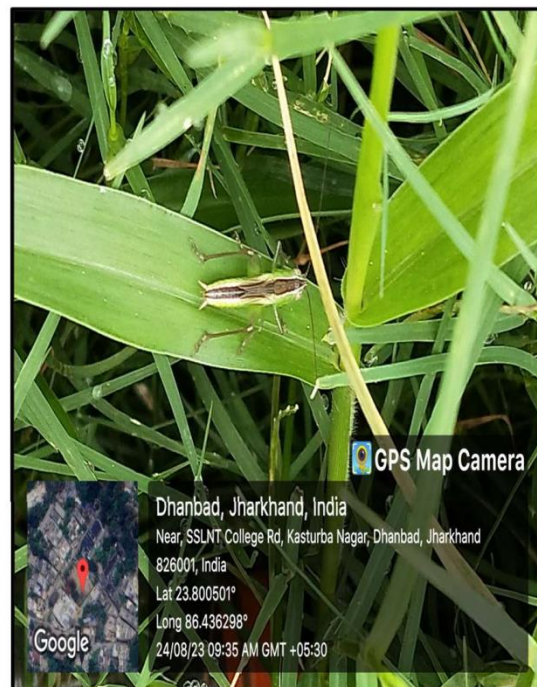
Scientific name: *Bagrada hilaris*
Common name: Bagrada bug



Scientific name: *Phanias albeolus*
Common name: Jumping spider



Scientific name: *Plexippus paykulli*
Common name: Pantropical jumping spider



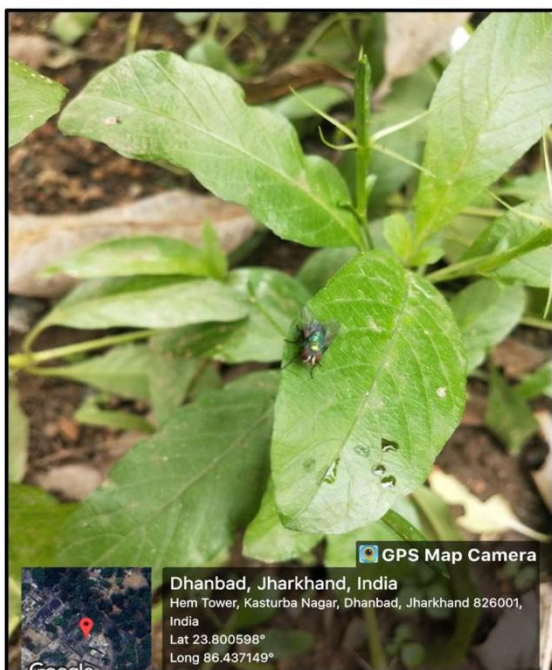
Scientific name: *Oxya yezoensis*
Common name: Rice grasshopper



Scientific name: *Trigoniulus corallinus*
Common name: Red garden millipede



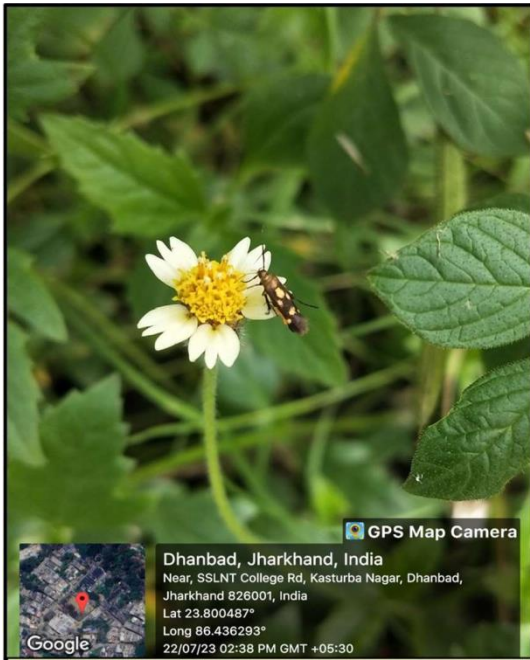
Scientific name: *Camponotus compressus*
Common name: Carpenter ant



Scientific name: *Lucilia sericata*
Common name: Common green bottlefly



Scientific name: *Pseudozizeeria maha*
Common name: Pale grass blue



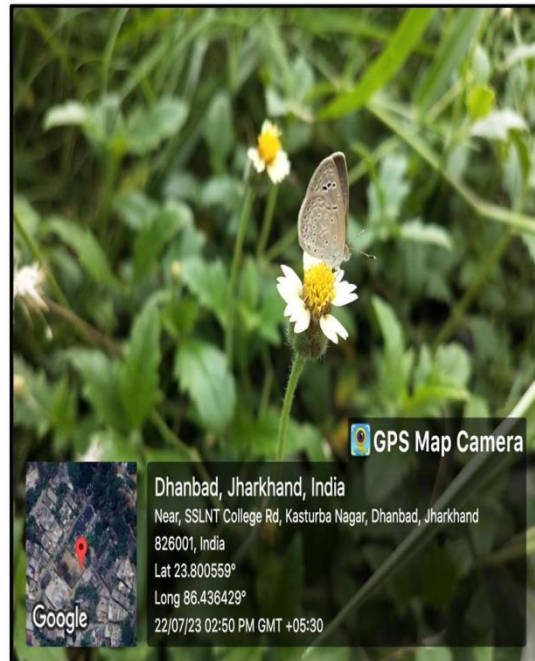
Scientific name: *Eretmocera impactella*
Common name: Spurs legged moth



Scientific name: *Agriocnemis pygmaea*
Common name: Pgymy darlet



Scientific name: *Sarcophaga carnaria*
Common name: Flesh fly



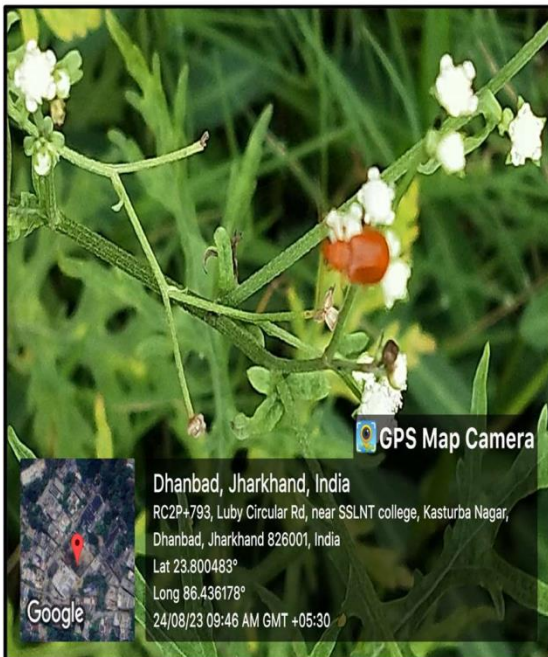
Scientific name: *Zizina labradus*
Common name: Common grass blue



Scientific name: *Luthrodes pandava*
Common name: Cycad blue



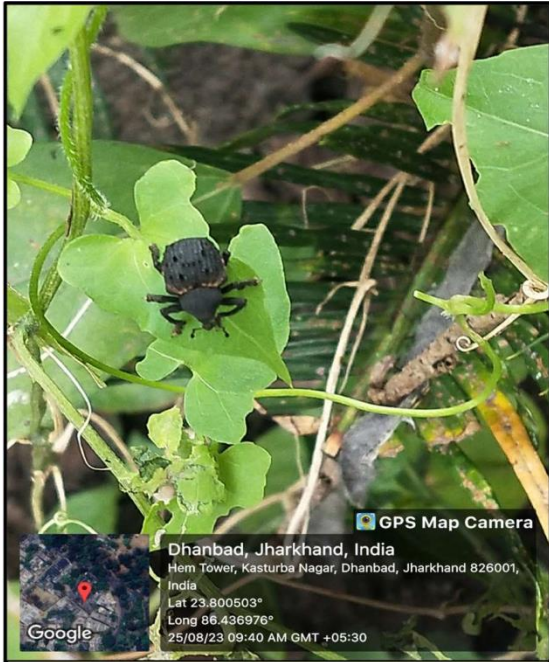
Scientific name: *Acrida cinerea*
Common name: Oriental londheaded locust



Scientific name: *Aulacophora femoralis*
Common name: Pumpkin beetle



Scientific name: *Epilachna* sp.
Common name: Ladybug



Scientific name: *Otiorynchus sulcatus*
 Common name: Black vine weevil



Scientific name: *Eristalinus taeniops*
 Common name: Hoverfly



Scientific name: *Dictyophara sp.*
 Common name: Plant hopper



Scientific name: *Erthesina acuminata*
 Common name: Stink bug

8.4 Tree Plantation Drive in College Campus (Nature awareness programmes in the campus)

Trees represent life, growth, peace and nature. They produce oxygen, clean soil, prevent drought, control flood related disasters, prevent soil erosion, improve physiological, mental and spiritual health, and also reduce carbon footprints. Keeping this in mind tree plantation drive was organized in college, following activities were conducted.

- Engaging students in maintaining garden
- Engaging students in maintaining herbal garden and medicinal garden.
- Plastic free campaign
- Active Participation of teachers in maintaining sustainability in campus
- Invited talks on environment sustainability.





Socially active Principal, professors & students





8.5 Waste Management

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

a) Observations:

The total solid waste collected in the campus is 5-8 Kg/day. Waste generation from tree droppings and lawn management is a major solid waste generated in the campus. The waste is segregated at source by providing separate dustbins for Bio-degradable and Plastic waste. Segregation of chemical waste generated in Chemistry Laboratories is also in practiced. Single sided used papers reused for writing and printing in all departments. Unimportant and non-confidential reports/ papers are sent for pulping and recycling after completion of their preservation period. Very less plastic waste (0.1Kg/day) is generated by some departments, office, garden etc. but it is neither categorized at point source nor sent for recycling. Metal waste and wooden waste is stored and given to authorized scrap agents for further processing. Few glass bottles are reused in the laboratories. The college has practice of paperless office work administration and as a result there is less carbon emission from printers, no carbon copy of bills, filing of cartridge outside the office (if necessary) is observed.

b) Recommendations:

- Reduce the absolute amount of waste that it produces from college staff offices.
- Make full use of all recycling facilities provided by Dhanbad Municipality Corporation and private suppliers, including glass, cans, white, coloured and brown paper, plastic bottles, batteries, print cartridges, cardboard and furniture.
- Provide sufficient, accessible and well-publicized collection points for recyclable waste, with responsibility for recycling clearly allocated.
- Single sided papers to be used for writing and photocopy

8.6 Social Awareness Campaign for Waste Management Organized by the College NSS Unit





Socially and Environmentally Active Students and Teachers



8.7 Green Belt Area & Bio-Diversity

The Green Belt Area is meant for conservation of nature and aesthetic value of the college premises. The Green Area in the college includes the plants, greenery and sustainability of the campus to ensure that the buildings conform to green standards. This also helps in ensuring that the Environmental Policy is enacted, enforced and reviewed using various environmental awareness programmes.

8.8 Importance Of Biodiversity Conservation

The campus should be a mini biodiversity conservation area, wherein, more greenery due to native plant species, medicinal plant garden, concept gardens, flowering plants that attract bees, birds, beetles and other animals like squirrels should be monitored as ecosystems. Shade giving trees in the paths, flowering trees in the avenues and fruit trees at the back yards also would attract birds, bees, butterflies and squirrels. Maintaining small ponds/open water sources and reservoirs will attract these small harmless animals to the campus.

Professional implementation of all the Eco plans in the campus should be done through the Ecoclubs, Nature clubs, Associations, and NSS (National Service Scheme). All the students, staff and employers should be mandatorily members of the club and should do tree planting and maintenance of greenery in the campus periodically. Conducting frequent seminars, conferences, workshops, awareness rallies, etc. on topics relevant to the environment is necessary to educate and create awareness among the students and staff members.

Awareness programme on the green campus initiatives needs to be accounted in a sustainable manner. Its benefits and self-sustainability can be projected for wider centric on earth and ecology conservation. Innovative practices that add up credentials in implementing the green campus which needs to be promoted in the awareness programme to the students and staff members including public domain. Technology driven solutions initiated by the green campus organization can also be disseminated and documented successively for propagating the attitude of the green campus in wider masses.

8.9 Recommendations

A green audit of any academic institution reveals, ways by which institute can reduce energy consumption, water use and reduction in emission of carbon dioxide in the environment. It is a process to look into and ask ourselves whether we are also contributing to the degradation of the environment and if so, in what manner and how we can minimize this contribution and bring down to zero and preserve our environment for future generation. This process of green audit enables us to assess our life style, action and assess its impact on the environment. Green auditing is the process of identifying and determining whether institutional practices are ecofriendly and sustainable. Traditionally, we are good and efficient users of natural resources. But over the period of time excess use of resources, viz., energy, water, chemicals are become habitual for everyone especially, in common areas. Now, it is necessary to check whether our activities are consuming more than required resources? Whether we are handling waste carefully? Green audit regulates all such practices and gives an efficient way of natural resource utilization. In the era of climate change and resource depletion it is necessary to verify the processes and convert it in to green and clean one.

Best practices to be followed on Green Campus initiatives in the organization

- 1) The Management of College may consider on top priority that total 33% area is to be reserved for plantation.
- 2) The Biodiversity is to be maintained while considering the plantation in future. The selection of trees species to be based on environmental conservation and carbon sequestration value.
- 3) Drip irrigation is strongly recommended to conserve the water.
- 4) Reuse of the water shall be done instead of use of fresh water.
- 5) Special Tree Plantation shall be celebrated every year on environment day and also competitions for bird species identification and knowing the tree values in terms of medicinal and environment conservation.
- 6) Planning of chemical consumption and purchase to be ensured.
- 7) Composting of bio degradable waste to be scientifically done.
- 8) Plan for green belt development to be prepared Awareness for energy and water conservation among students and staff by displaying boards.
- 9) Tree plantation shall be done to maintain biodiversity as well as artificial nesting shall be installed.
- 10) Exhaust gas analysis shall be done.
- 11) Use of incinerators is a major step towards the use of clean technology. The institution should installed these machines for the disposal of non-biodegradable waste. Sanitary Vending Machine (SVM) and Sanitary Disposable Machine (SDM) are installed in toilets as well as in girl's hostel.
- 12) Vegetables, fruits, and greens could be cultivated in the college campus through terrace garden, kitchen garden and indoor garden.
- 13) The name board may be kept in each plant species in which the common name along with binomial name may be mentioned. The year of planting and economic importance with medicinal values if any may be mentioned in some plants so that the oldest as well as useful herbal plants may be identified in the campus.
- 14) Bins to be kept in the washrooms and toilets, different bins for Biodegradable and non-biodegradable as wet and dry waste bins can be kept across the campus.
- 15) Classrooms can be made free from moulds on ceiling.
- 16) Students can be encouraged to paint the college surroundings with slogans highlighting the nature conservation and environment protection.

9. AUDITOR 'S NOTE

9.1 Water and Waste Water Management

Observation:

1. The main source of potable water and waste water for gardening etc. is the bore well.
2. Recycling of waste water is not done.
3. At times there is overflow of water from the overhead tanks.
4. Solar pump is installed for lifting water.
5. The students are provided with RO filtered water.

Recommendations:

1. Steps should be taken to reduce dependency on borewell source because of the fast depleting ground water reserve.
2. Steps should be taken for recycling of waste water. The waste water from the bathroom can be used in the garden area.
3. Sumps for storage of rain water should be constructed. This water can be used in bathrooms, lavatories during lean season.
4. Electronic monitors should be put in place to prevent overflow of water from the overhead tank.

Best Practices:

1. Display boards for awareness towards water conservation.
2. Water conservation drive by NSS students is the campus as well as in the immediate vicinity of the college.

9.2 Solid Waste Management:

Observation:

1. The campus was found to be free from litter.
2. Number of dustbins was found to be inadequate.

Recommendations:

1. More wastebins, preferably color coded should be placed. At least one wastebin should be placed before each classroom and laboratory.
2. Use of plastics in the campus be banned. Plastics wrappers of sanitary pads should be disposed scientifically.

Best Practices:

1. Food waste and horticultural waste is collected in pits for composting.
2. Sanitary pad disposal machine is installed in the campus.

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9.3 Energy Consumption:

Observation:

1. Use of solar energy for meeting the energy requirement of the college is a welcome sign. it has inspired the students to think of making their own home energy efficient.
2. Survey of students revealed that they are aware of need of saving electricity. They see to it that the light and fans are switched off when the classroom /laboratory is not in use.
3. Use of energy LED bulbs in the campus.

Recommendations:

1. There should be facility for recording the energy consumption of different unit of the college separately, so that misuse /leakage can be assessed.
2. Fridge, AC, and other electrical appliances in use be replaced by power saving varieties.

Best Practices:

1. Use of solar panel for meeting energy requirement.
2. Display boards for making students aware of need for energy conservation.

9.4 Flora and Fauna

Observation:

1. Given the sparse area, the college has maintained a good garden.
2. To promote a healthier environment, trees has been planted in good numbers.

Recommendation:

1. Full time gardener is required for maintaining the garden area of the college.

Good practices:

1. Senior management including Principal encourages students to bring plants from home.
2. Teachers also encourages students to introduce green initiatives at their homes. This was revealed by the students during their interaction with the audit teams.

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9.5 Conclusion

1. The audit involved extensive consultation and interaction with the audit team and key personnel of the college.
2. The quality of air and drinking water in the campus is found to be in excellent condition and is free from pollution.
3. Use of solar energy, waste minimization, & recycling, greening of campus is helping in the maintenance of the campus in environment friendly way.
4. The campus is maintained well from environmental perspective. Few things which needs improvement has been mentioned in the report.
5. To minimize the carbon footprint, the college needs to have some buses for students. Overall, the campus is maintained **satisfactory** from environmental perspective.

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10. Few photographs taken during audit



11. LABORATORY TEST CERTIFICATES



YUGANTAR BHARATI ANALYTICAL & ENVIRONMENTAL ENGINEERING LABORATORY

Certified by :- ISO 9001:2015 & ISO 45001:2018

Test Report

Discipline	Chemical	Group	Atmospheric Pollution	Sample Description	Ambient Air Quality
Report Release Date	21 st February, 2024				
Type of Industry (if any)	College				
Report Issue to	SSLNT Mahila Mahavidyalaya Luby Circular Road, Dhanbad, Jharkhand - 826001				
Sampling Period	17/02/2024 - 18/02/2024	Mode of sample collection		By YBAEEL Team	
Sampling Protocol	IS:5182 and CPCB Air Manual Volume-1(NAAQM/36/2012-13)				
Sampling Locations	A. Near College Library		23°48'02"N, 86°26'12"E		
Meteorological Cond. of Field	W.C.- Clear	RH % - 51	Temp. - 26°C	W.D.- North-South	
Sample receipt Date	19/02/2024	Analysis Started on	19/02/2024	Analysis completed on	21/02/2024

*****Test Results*****

Parameters	Test Methods	Units	Sampling Location		Limits
			Site A	Site B	
Particulate matter (PM ₁₀)	IS:5182 (P-23) 2006, RA 2022	µg/m ³	78.2		100
Particulate matter (PM _{2.5})	IS:5182 (P-24) 2019	µg/m ³	31.6		60
Sulphure Dioxide (SO ₂)	IS:5182 (P-2/Sec1) 2023	µg/m ³	14.0		80
Nitrogen Dioxide (NO ₂)	IS:5182 (P-6) 2006 RA 2022	µg/m ³	34.6		80
Ammonia (NH ₃)	IS:5182 (P-25) 2018	µg/m ³	62.7		400
Ozone (O ₃)	IS:5182 (P-09):1974, RA 2019	µg/m ³	3.1		180 (1 hr.)

Limit is specified as	Environmental (Protection) Rule - 1986.
Abbreviation	MDL - Minimum detection limit, BDL : Below detection limit.
Env. Condition of Lab	Laboratory is maintaining, Temperature 27 ± 2°C and Relative Humidity 65 ± 5% in all testing areas as per IS 196:1956 (C)
Specific contractual notes	All values are expressed in its unit and results tested refer only to the tested sample and applicable parameter in Lab's Permanent Facility This report, in full or in part, shall not be used for advertising or as evidence in any court of law. This report cannot be reproduced, except when in full, without the written permission of the CEO. The samples collected shall be destroyed after 15 days from the date of issue of the certificate unless specified otherwise. The liability of the laboratory is limited to the invoiced amount. All disputes are subjected to the Ranchi Jurisdiction.
Remarks	Samples comply with prescribed limits.

Sample Drawn By - Niraj Kumar
Tested By - Akash Khalikho (Lab Analyst)

Verified by Sumit Kant Srivastava (Sr. Lab Analyst)	Issued by Sanjeev Kumar Singh (Technical Manager)

*****End of Report*****

Authorized Signatory
Atmospheric Pollution
Yugantar Bharati Analytical &
Environmental Engineering Laboratory

Enquiry Office - Jamshedpur Dhanbad Hazaribag Pakur
Main Office Cum Laboratory :- Plot No. 551, Khata No 62, Sidroul, P.O. Namkum, P.S. Namkum, Ranchi, Jharkhand
Ph : 09835197960, 9304955304, Email - ybaeel@gmail.com, Web - https://ybaeel.in



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YUGANTAR BHARATI
ANALYTICAL & ENVIRONMENTAL ENGINEERING LABORATORY

Certified by :- ISO 9001:2015 & ISO 45001:2018

Test Report

Discipline	Chemical	Group	Water	Sample Description	Drinking Water
Report Release Date	22 nd February, 2024				
Type of Industry (if any)	College				
Report Issue to	SSLNT Mahila Mahavidyalaya Luby Circular Road, Dhanbad, Jharkhand - 826001				
Sampling Date	18/02/2024				
Sampling Protocol	IS : 17614 (Part-1): 2021				
Sampling Location	Tap Water (Near Main Gate)				
Sample pkg. Condition	Sealed Pack in PP Bottle				
Meteorological Cond. of Field	W.C.- Clear		RH % - 58		Temp. - 26°C
Sample receipt Date	19/02/2024	Analysis Started on	19/02/2024	Analysis completed on	22/02/2024

*****Test Results*****

Sl	Parameter	Test Method	Units	Results	Limits
1	pH value	IS 3025 (P-11):2022 (Electrometric Method)	pH	7.72 at 28.8°C	6.5-8.5
2	Colour	IS 3025 (P-04):2021 (Visual Comparison Method)	Hazen	5	5-15
3	Conductivity	IS 3025 (P-14):2013, RA 2019	µs/cm	220.0 at 28.6°C	--
4	Total Alkalinity (as CaCO ₃)	IS 3025 (P-23):1986, RA 2019 (Indicator Method)	mg/l	178.0	200-600
5	Total Hardness (as CaCO ₃)	IS 3025 (P-21):2009, RA 2019 (EDTA Method)	mg/l	292.0	200-600
6	Total dissolved solids	IS 3025 (P-16):2023 (Gravimetric Method)	mg/l	346.0	500-2000
7	Chlorine Residual	IS 3025 (P-26):2021 (Iodometric Method)	mg/l	BDL (MDL 0.07)	0.2-1
8	Chloride (as Cl)	IS 3025 (P-32):1986, RA 2019 (Argentometric Method)	mg/l	159.6	250-1000
9	Fluoride (as F)	APHA 4500 F-C 24 th edition 2023 (on Selective Electrode Method)	mg/l	0.58	1.0-1.5
10	Calcium (as Ca)	IS 3025 (P-40):1991, RA 2019 (EDTA Titrimetric Method)	mg/l	87.4	75-200
11	Magnesium (as Mg)	APHA 3500 Mg B 24 th edition 2023	mg/l	17.9	30-100
12	Copper (as Cu)	APHA 3111 B 24 th edition 2023 (Direct Air Acetylene Flame Method)	mg/l	0.28	0.05-1.5
13	Iron (as Fe)	APHA 3111 B 24 th edition 2023 (Direct Air Acetylene Flame Method)	mg/l	BDL (MDL 0.01)	1.0-No relaxation
14	Lead (as Pb)	APHA 3111 B 24 th edition 2023 (Direct Air Acetylene Flame Method)	mg/l	BDL (MDL 0.02)	0.01-No relaxation
15	Zinc (as Zn)	APHA 3111 B 24 th edition 2023 (Direct Air Acetylene Flame Method)	mg/l	0.11	5-15

Limit is specified as	IS 10500:2012, RA 2016.
Abbreviation	MDL - Minimum detection limit, BDL - Below detection limit.
Env. Condition of Lab	Laboratory is maintaining Temperature 27 ± 2°C and Relative Humidity 65 ± 5% in all testing areas as per IS 15515:06 (C).
Specific contractual notes	All values are expressed in its unit and results listed refer only to the tested sample and applicable parameter in Lab's Permanent Facility. This report in full or in part, shall not be used for advertising or as evidence in any court of law. This report cannot be reproduced, except when in full, without the written permission of the CEO. The samples collected shall be destroyed after 15 days from the date of issue of the certificate unless specified otherwise. The liability of the laboratory is limited to the invoiced amount. All disputes are subjected to the Ranchi Jurisdiction.
Remarks	Sample complies with prescribed limits.

Sample Drawn By - Niraj Kumar
Tested By - Satyam Kumar (Lab Analyst)

Verified by Shivani Kumari Singh	Issued by Sanjeev Kumar Singh (Authorized Signatory)
-------------------------------------	--

*****End of Report*****

Authorized Signatory
Chemical Section
Yugantar Bharati Analytical &
Environmental Engineering Laboratory

Enquiry Office - Jamshedpur | Dhanbad | Hazaribag | Pakur
Main Office Cum Laboratory :- Plot No. 551, Khata No 62, Sicroul, P.O. Namkum, P.S. Namkum, Ranchi, Jharkhand
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**YUGANTAR BHARATI
ANALYTICAL & ENVIRONMENTAL ENGINEERING LABORATORY**

Certified by :- ISO 9001:2015 & ISO 45001:2018

Test Report

Discipline	Chemical	Group	Water	Sample Description	Drinking Water
Report Release Date	22 nd February, 2024				
Type of Industry (if any)	College				
Report Issue to	SSLNT Mahila Mahavidyalaya Luby Circular Road, Dhanbad, Jharkhand - 826001				
Sampling Date	18/02/2024				
Sampling Protocol	IS : 17614 (Part-1): 2021				
Sampling Location	RO Water (Near Office Building)				
Sample pkg. Condition	Sealed Pack in PP Bottle				
Meteorological Cond. of Field	W.C.- Clear		RH % - 58		Temp. - 26°C
Sample receipt Date	19/02/2024	Analysis Started on	19/02/2024	Analysis completed on	22/02/2024

*****Test Results*****

Sl	Parameter	Test Method	Units	Results	Limits
1	pH value	IS 3025 (P-11):2022 (Electrometric Method)	pH	7.58 at 28.6	6.5-8.5
2	Colour	IS 3025 (P-04):2021 (Visual Comparison Method)	Hazen	5	5-15
3	Conductivity	IS 3025 (P-14):2013, RA 2019	µm/cm	238.0	--
4	Total Alkalinity (as CaCO ₃)	IS 3025 (P-23):1986, RA 2019 (Indicator Method)	mg/l	206.0	200-600
5	Total Hardness (as CaCO ₃)	IS 3025 (P-21):2009, RA 2019 (EDTA Method)	mg/l	328.0	200-600
6	Total dissolved solids	IS 3025 (P-16):2023 (Gravimetric Method)	mg/l	378.0	500-2000
7	Chlorine Residual	IS 3025 (P-26):2021 (Iodometric Method)	mg/l	BDL (MDL 0.07)	0.2-1
8	Chloride (as Cl)	IS 3025 (P-32):1988, RA 2019 (Argentometric Method)	mg/l	82.8	250-1000
9	Fluoride (as F)	APHA 4500 F-C 24 th edition 2023 (Ion Selective Electrode Method)	mg/l	0.62	1.0-1.5
10	Calcium (as Ca)	IS 3025 (P-40): 1991, RA 2019 (EDTA Titrimetric Method)	mg/l	110.6	75-200
11	Magnesium (as Mg)	APHA 3500 Mg B 24 th edition 2023	mg/l	12.5	30-100
12	Copper (as Cu)	APHA 3111 B 24 th edition 2023 (Direct Air Acetylene Flame Method)	mg/l	0.18	0.05-1.5
13	Iron (as Fe)	APHA 3111 B 24 th edition 2023 (Direct Air Acetylene Flame Method)	mg/l	BDL (MDL 0.01)	1.0-No relaxation
14	Lead (as Pb)	APHA 3111 B 24 th edition 2023 (Direct Air Acetylene Flame Method)	mg/l	BDL (MDL 0.02)	0.01-No relaxation
15	Zinc (as Zn)	APHA 3111 B 24 th edition 2023 (Direct Air Acetylene Flame Method)	mg/l	BDL (MDL 0.1)	5-15

Limit is specified as	IS 18500:2019, RA 2018.
Abbreviations	MDL - Minimum detection limit, BDL - Below detection limit.
Env. Condition of Lab	Laboratory is maintaining Temperature 27 ± 2°C and Relative Humidity 65 ± 5% in all testing areas as per IS 15619:2016 (C).
Specific contractual notes	All values are expressed in as unit and results listed refer only to the tested sample and applicable parameter in Lab's Permanent Facility. This report, in full or in part, shall not be used for advertising or as evidence in any court of law. This report cannot be reproduced, except when in full, without the written permission of the CEO. The samples collected shall be destroyed after 15 days from the date of issue of the certificate unless specified otherwise. The facility of the laboratory is limited to the invoiced amount. All disputes are subjected to the Ranchi Jurisdiction.
Remarks	Sample complies with prescribed limits.

Sample Drawn By - Niraj Kumar
Tested By - Satyam Kumar (Lab Analyst)

Verified by Shivani Kumari Singh	Issued by Sanjeev Kumar Singh (Authorized Signatory)

*****End of Report*****

Authorized Signatory
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