# Green Audit Report (2022-23)
# of
# KANCHRAPARA COLLEGE

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**Certificated ISO based**

# Contents:

## 1. Introduction:

The results and conclusions and suggestions from a thorough green audit carried out at Kachrapara College are presented in the report that continues. The audit's goals were to evaluate the college's environmental impact and spot areas where sustainability may be improved. The audit addressed topics like journeys, disposal of trash, water use, electricity consumption, and general environmental awareness.

## Green Audit Working Team (2021-22):

| Sl No | Name of the Members | Designation |
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| 1 | Dr. Pranab Kumar Bera | Principal |
| 2 | Dr. Subhro Ghoshal | IQAC Coordinator |
| 3 | Dr. Subhabrata De | Evening -In-Charge |
| 4 | Sandip Mallick | Bursar |
| 5 | Dr. Bimalendu Ghosh, | GB Member |
| 6 | Dr. Biswajit Kar, Department of environmental science | Member |
| 7 | Dr. Piyal Bhattacharya, Department of environmental science | Member |
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| 2 | Dr. Pradip Kumar Biswas, IQAC Coordinator | Co-Ordinator<br>IQAC<br>Kanchrapara College<br>Kanchrapara, 24 Pgs (N) |
| 3. | Mr. Amalesh Kumar Mandal, Lead Auditor,Management System Consultancy | Amalesh Kr. Mandal |

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## 2. Need for Green Audit:

Green audits, also known as environmental audits or sustainability audits, are becoming more and more necessary in today's society for several reasons:

**(a) Environmental Impact:** Green audits assist in evaluating and reducing an organization's negative environmental impact. They assess variables like energy use, waste production, water use, and emissions, identifying areas that might be improved to lessen environmental harm.

**(b) Regulatory Compliance:** Businesses must abide by the environmental laws and standards that have been set in many nations. Green audits assist businesses in complying with regulations and avoiding fines or other legal repercussions for non-compliance.

**(c) Cost Reduction:** Green audits can reveal inefficiencies and wasteful behaviours within a company, opening up chances for cost savings. Businesses can apply methods to save operational costs and boost overall efficiency by analyzing energy usage, resource consumption, and waste management.

**(d) Reputation and Stakeholder Expectations:** Consumers and other stakeholders now demand more environmentally conscious company practices. Green audits offer organization transparency and prove its dedication to sustainability, strengthening its reputation and fostering trust among clients, staff, investors, and communities.

**(e) Risk Management:** Environmental hazards can have serious financial and reputational ramifications for firms, including pollution events, regulatory non-compliance, and supply chain interruptions. By evaluating environmental management systems, ensuring sufficient controls are in place, and putting preventative measures in place to deal with possible problems, green audits assist in identifying and mitigating these risks.

**(f) Continuous Improvement:** Green audits encourage a continuing commitment to sustainability rather than being one-time events. Organizations can see trends, set goals, and implement improvement initiatives by routinely evaluating and tracking environmental performance. This iterative process promotes a culture of sustainability and propels long-lasting transformation.

**(g) Sustainable Development Goals (SDGs):** An international framework for solving urgent environmental and social issues is provided by the Sustainable Development Goals. Organizations can better align their operations with these objectives with the aid of green audits, paving the way for a more just and sustainable future. To evaluate, enhance, and confirm environmental performance, green audits are essential. They allow companies to control risks, comply with rules, cut costs, improve reputations, and support sustainable development.

## 3. Methodology for Green Audit:

Audits of an organization's environmental performance and practices are known as "green," "environmental," or "sustainability" audits. They entail assessing the company's influence on the environment, resource usage, waste management, and adherence to environmental legislation. Here is a procedure for carrying out a green audit:

(a) Planning:

(b) Identify audit team and resources:

(c) Develop an audit plan: Create a detailed plan outlining audit activities, timelines, responsibilities, and communication channels.

(d) Data Collection:

(e) Gather information:

(f) Conduct site visits and interviews:
(g) Review documentation:
(h) Evaluation and Analysis:
(i) Assess environmental impacts:
(j) Evaluate compliance:
(k) Identify strengths and weaknesses:
(l) Quantify results:
(m) Reporting:
(n) Prepare an audit report:
(o) Communicate results:
(p) Follow-up and Improvement:
(q) Develop an action plan:
(r) Monitor progress:
(s) Continuous improvement:

The methodology adopted to conduct the Green Audit of the Institution had the following components.

**3.1. On-site Visit :**

The Green Audit Team carried out the five-day field trip. The tour's main goal was to evaluate the Institution's waste management procedures, energy conservation tactics, and other aspects of its green cover. The protocols for sample collection, preservation, and analysis were followed scientifically.

**3.2. Focus Group Discussion :**

The nature club, staff, and management members participated in focus group discussions on various facets of the green audit. Identification of attitudes and awareness towards environmental issues at the institutional and local levels was the main topic of discussion.

**3.3. Energy and waste management Survey:**

The audit team evaluated the college's waste generation, disposal, and treatment facilities as well as its energy usage pattern with the assistance of teachers and students. A comprehensive questionnaire survey method was used to carry out the monitoring.

## 4. Target Areas of Green Auditing:

A process for resource management includes a green audit. The actual usefulness of green audits lies in the fact that they are conducted at predetermined intervals and that the results might show improvement or change over time, even though they are individual events. The concept of an eco-campus primarily emphasizes the effective use of energy and water, the reduction of waste output or pollution, and economic efficiency.
These indications are evaluated during the "Green Auditing of this Educational Institute" procedure. In order to reduce emissions, obtain a reliable and affordable energy supply, promote personal responsibility, encourage and improve energy conservation, reduce the institute's energy and water use, reduce waste going to landfills, and incorporate environmental considerations into all contracts and services deemed to have significant environmental impacts, Eco-campus focuses on these goals. Water, energy, trash, and green campus are the focus topics for this green audit.

**4.1. Energy Consumption:**

**4.1.1. Lighting:** The audit showed that many of the college's lighting fixtures were ineffective and outdated. It is advised to use natural light whenever possible, add occupancy sensors, and swap out conventional light bulbs for energy-efficient LED ones.

**4.1.2. Heating, Ventilation, and Air Conditioning (HVAC):**

The HVAC systems were discovered to be working less efficiently than necessary. Energy usage can be considerably decreased by switching to energy-efficient HVAC equipment, using programmable thermostats, and performing routine maintenance.

**4.1.3. Energy Awareness:** The college should promote energy conservation practices among employees and students. Campaigns, educational activities, and financial incentives for energy-saving projects can all help achieve this.

| Electrical device/items | Number | Power (watt) | Usage time (hr/day) |
|---|---|---|---|
| Normal Tubelight | 50 | 3000 | 10:00 am to 5:00 pm |
| LED Tubelight | 730 | 29200 | Do |
| Normal Bulb | 0 | 0 | Do |
| LED Bulb | 20 | 500 | Do |
| Ceiling Fan | 285 | 17100 | Do |
| Wall fan | 44 | 2640 | Do |


**In offices and in classrooms, we have replaced common tubes with low-watt LED tubes. We obtain sufficient illumination with low-wattage led tubes. As a result of this, we conserve power.**

**Note: The fact that all of the power switches are active, demonstrates that the electrical equipment is being maintained properly.**

| | |
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|  |  |
| **LED Bulb & save energy** | **Performing routine maintenance on electrical fans. The accumulation of dust and debris can hinder the fan's performance. Regular cleaning of the grilles, blades, and motor housing is necessary to maintain optimal operation, ensure smooth airflow & save energy.** |

**Silent DG sets are designed to generate a very low level of background noise, just as their name suggests. Their structures are constructed to eliminate virtually all noise and vibrations due to careful design. Because of this, they are not harmful to the environment and are ideally suited for use in residential areas.**

## 4.2. Waste Management:

**4.2.1. Recycling:** Although there were recycling containers all across the campus, the audit showed that there was a lack of effective separation and information about recyclable products. Increased recycling rates can be achieved by upgrading signage, giving clear instructions and implementing a comprehensive recycling education programme.

**4.2.2. Composting:** The institution can set up a composting system to handle the organic waste produced by Hostel members (Boys & Girls Hostel). Composting can help drastically reduce the quantity of garbage dumped in landfills while also producing beneficial compost for campus landscaping and gardening.

**Table: Different types of waste generated in the college and their disposal**

| Types of waste | Particulars | Disposal method |
|---|---|---|
| E-Waste | Computers, electrical and electronic parts | Store these in a separate tank, and we can start selling them directly after a certain amount of time. |
| Plastic waste | Pen, Refill, Plastic water bottles and other plastic containers, wrappers etc | Items made of plastic that are only intended to be used once, such as bottles, jars, and bags. Encourage people to use water bottles and other containers that may be reused. Establish distinct recycling containers for plastic garbage, and after a predetermined period of time, we will be able to begin selling the collected recyclables directly. |
| Solid wastes | Paper waste, Damaged furniture, paper plates, food wastes | Reuse after maintenance energy conversion. Installing composting systems on a college campus will allow for the |

| | | |
|---|---|---|
| | | conversion of discarded food into nutrient-dense compost that may be used in the campus landscaping or in community gardens. Another option is for institutions to form partnerships with farmers in the surrounding area to collect food waste. |
| Chemical wastes | Laboratory waste | Water should be used to neutralise. When dealing with hazardous garbage, adhere strictly to all safety regulations. |
| Wastewater | Washing, urinals, bathrooms | Soak pits |
| Glass waste | Broken glass wares from the labs | Glass debris should be kept separate from other recyclable materials and disposed of in containers that are specifically intended for glass recycling. Make sure that you recycle glass in the correct manner by coordinating with the local recycling centers. |
| Sanitary Napkin | - | Napkin Incinerators |

## 4.3. Water Usage:

**4.3.1. Water Fixtures:** Numerous locations within the college had outdated and ineffective water fixtures, which caused excessive water use. Water resources can be saved by swapping these fixtures for low-flow models and encouraging staff and students to practice water-saving habits.

## Water management table:

| Water Management Tasks | Frequency | Responsible Party |
|---|---|---|
| Routine examination of water supplies | Monthly | Green Audit Working Team |
| Testing for drinking water quality | Half-yearly | Do |
| Awareness of water conservation | Half-yearly | Green Audit Working Team & various department |
| Infrastructure for water distribution that needs upkeep and repair | As needed | Caretaker |
| Reporting and analysis of water use | Annually | Green Audit Working Team & Caretaker |
| Learn what causes excessive water consumption. | As needed | Caretaker |

**Regular Maintenance of Water Tanks**

## Tabular data detailing the subject at hand:

| Sl No | Parameters | Response |
|---|---|---|
| **1** | Source of water | Municipality, Underground, Pond (1500 sqft) & Rain Harvesting Water<br>**Note:** The ground's water serves as a drinking water supply for around 4,500 people, including students and staff members. |

| | | |
|---|---|---|
| **2** | Source of Drinking Water | Ground's water |
| **3** | Any treatment for drinking water | Nil<br>**Note:** Water purifiers have been installed in 1-2 numbers on each floor and are maintained for 3–4 months afterward. |
| **4** | What is the total number of motors that are used? | 02 numbers |
| **5** | What is the total number of water tanks? Capacity of tank | 12 numbers@ 1000 liters each |
| **6** | Tap water | 220 numbers |
| | Quantity of water pumped every day | 18000 liters/per day |
| **7** | Do you waste water, and if so, why? | No |
| **8** | How much water is required for gardening purposes? | 600 liters/per day |
| **9** | How many water coolers are there in total? | 02 |
| **10** | Do you have access to rainwater harvesting? | Yes |
| **11** | The number of units harvested and the total volume of water | 01 number, We have constructed a water canal to connect a college pond that is 1500 square feet and 5,000 liters of tanks to store rainwater. |
| **12** | Any leaky taps | None |
| **13** | Daily amount of water that is lost. | Not applicable |
| **14** | Is there any kind of plan for the management of water? | Raise public awareness regarding the importance of water conservation, the prevention of pollution, and the implementation of sustainable water management practices. Unambiguous water rights and equitable water allocation regulations should be |

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| | | established to ensure that water is distributed fairly among the many different users. |
| **15** | Have any methods for conserving water been implemented? | Rainwater Harvesting |

**4.4. Transportation:**

**4.4.1. Public Transport:** The college's carbon footprint can be significantly reduced by encouraging employees and students to use public transport. Sustainable transport solutions can be promoted by offering cheap bus passes, encouraging carpooling, and supporting bicycle infrastructure.

<table>
<tr><td rowspan="2"> 
</td><td>Students</td><td>Employee</td><td>Total</td></tr>
<tr><td colspan="3">Average numbers over 6 days in a peak session</td></tr>
<tr><td>Bicycles are being used as modes of transportation for getting to and around the college by students, non-teaching staff and teaching staff.</td><td>Girls-172<br>Boys-81</td><td>28</td><td>281</td></tr>
</table>

**4.4.2. Electric Vehicles:** To aid in the switch to electric transport, the college may choose to invest in infrastructure for charging EVs. Additionally, encouraging the use of electric vehicles through awareness programs and incentives can help lower the emissions produced by on-campus transportation.

**Scooter with an electric motor that is utilized by a member of the college's faculty. There are large numbers of electric motor cycles that both our pupils and our employees use.**

### 4.5. Overall Environmental Awareness:

**4.5.1. Curriculum Integration:** The institution can integrate environmental awareness and sustainability into its curriculum across various subject areas. This strategy will guarantee that students receive instruction and training in environmental stewardship, encouraging sustainable thinking.

| Environmental awareness across different subjects | Parameters | Program time |
|---|---|---|
| Language Arts | Discuss texts from literature that are in some way connected to topics concerning the environment, such as conservation or environmental advocacy. Compose poetry or essays that argue for the protection of the environment and use persuasion. Conduct research on a variety of | Whole year |

| | | |
|---|---|---|
| | environmental topics, then present your findings. Through various awareness programs, they understand the environmental laws and regulations that apply on the local, national, and international levels. Discuss the roles that governments, NGOs, and people play in the effort to solve environmental problems. Investigate the environmental concerns from both a historical and cultural point of view. | |
| Arts | Investigate the causes of climate change and possible solutions to the problem. Analyse the impact that human activities have had on different landscapes as well as the distribution of natural resources. Studies should be done on urbanization, logging, and industry's impact on the natural environment. Investigate geographical approaches to resolving environmental issues, such as environmentally responsible land management planning. | Whole year |
| Pure Science | Conduct studies on environmental issues, such as assessing water quality, soil analysis, power consumption or recycling. To better comprehend environmental patterns and forecasts, consider using mathematical models. Investigate the repercussions of environmental actions on the economy, such as doing cost-benefit analyses for environmentally friendly projects. | Half-yearly/ each program |
| Bio-Science | Study subjects include ecosystems, biodiversity, and the interconnectedness of all living things. | Whole year |
| Physical Education | Encourage students to develop an appreciation for the natural world by having them participate in outdoor sports and activities. Talk about the significance of physical activity for both one's own health and the health of the environment (for example, taking bike | Whole year |

| | | |
|---|---|---|
| | instead of the car). | |
| NSS | To enhance the amount of green cover and fight deforestation, organizing tree-planting events in local communities and educational institutions is important. To combat littering and to encourage a clean environment, it is important to organize routine clean-up efforts in public places like parks and beaches. To educate both students and members of the general public about environmental issues such as climate change, waste management, renewable energy, and conservation, workshops and seminars should be organized. It should be a priority to create opportunities for individuals to engage with the natural world and develop a sense of ownership over its preservation through participating in hikes and other outdoor activities. To raise awareness about environmental issues and motivate people to take action, you might use social media, posters, and booklets. | Whole year |



**Plantation Programmes**

**4.5.2. Student Engagement:** A culture of sustainability can be promoted among students by supporting student-led projects, creating environmental groups, and holding awareness events and workshops.

## 5. Green Campus:

### 5.1. Floral Diversity:

The following are some actions to take into account when setting up a plantation programme at your college:

-Organise a group of academics, employees, and students who are interested in managing the plantation programme. Assign roles and duties to make the execution go smoothly.

-Consult with local forestry professionals or environmental groups to discover native or adapted tree species that are well-suited to the climate, soil, and goal of the plantation programme. Research and choose suitable tree species.

-To obtain the necessary approvals or permits for planting trees on campus or in the neighborhood, check with the college administration or other appropriate authorities.

- Look into possible funding options, including grants, sponsorships, or collaborations with nearby companies or environmental organizations. This will aid in defraying the price of buying trees, equipment, and other required supplies.

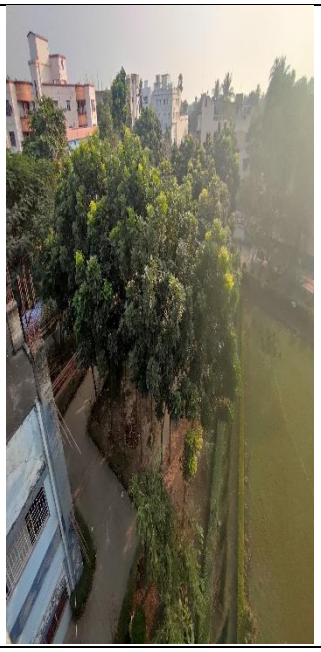
- Establish the plantation event's date, time, and venue. Plan the delivery of the trees, tools, and equipment to the planting location. Make sure that safety precautions are in place, including appropriate instruction on planting methods and equipment use.

-Promote the planting programme within the campus community by using various communication channels, such as posters, social media, emails, and word-of-mouth, in order to raise awareness and find volunteers. Encourage everyone to volunteer, including alumni, faculty, staff, and students.

-Volunteers should be gathered at the planting site on the appointed planting day. Give them the equipment, instructions, and direction they need to plant trees correctly. Foster a sense of accomplishment and community pride while fostering teamwork.

-Stress the significance of taking care of the freshly planted trees. This could entail routine weeding, mulching, watering, and pest or disease inspection. To guarantee the long-term well-being and survival of the trees, think about setting up a system for volunteers or staff members.

-After the plantation programme, evaluate the impact and accomplishment of the effort. Keep an eye on the trees' growth and survival rate. To determine areas for improvement and to organize upcoming plantation programmes, collect participant and stakeholder input.

**Floral Diversity of the Campus**

**The aesthetic attractiveness of the college campus is enhanced by a football field with lush grassland, which makes the institution more welcoming and appealing to students, professors and visitors.**

### 5.2. Faunal Diversity:

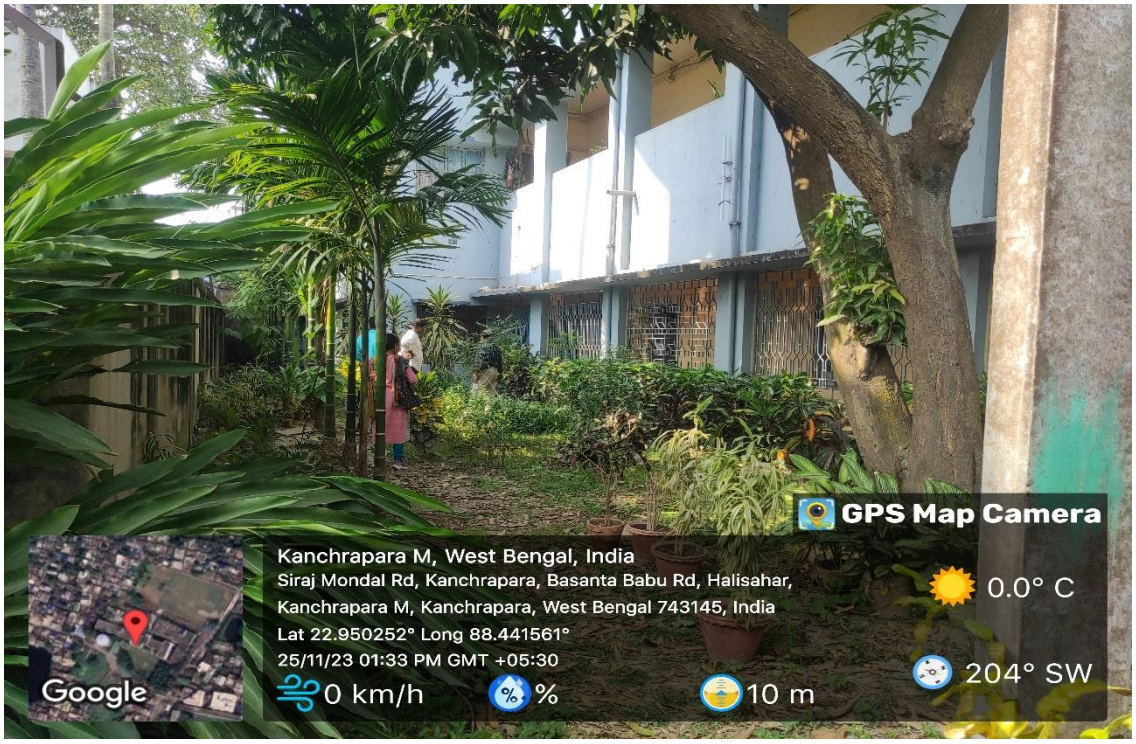
Studying faunal diversity can increase awareness about environmental challenges and conservation's significance. Colleges that are home to a wide variety of animal species may be more likely to adopt environmentally friendly policies and methods of operation to safeguard the campus environment and the people who live there.

**Birds Diversity:**

A population of birds that is rich in variety is indicative of an ecosystem that is robust and thriving. Seed dispersal, the control of insect populations, and pollination are just a few of the many important functions that different species of birds perform to help maintain ecological equilibrium. They provide a contribution to the campus's general diversity of flora and fauna.

## 6. Plantation of Wild type Medicinal plants:

Two medicinal gardens were developed at our college premises. Many wild medicinal plant varieties were lost daily due to anthropogenic activities and pollution. After identifying these plants, we conserve these through propagation in our medicinal gardens. Any interested people or agencies can access it through the proper channel. Medicinal garden is a specific area inside the grounds of a college that is dedicated to the cultivation and upkeep of a wide range of different sorts of medicinal plants. As an educational and research resource, it makes it possible for students, faculty members, and researchers to investigate and gain knowledge on medicinal plants' varied qualities and applications. Culturing a medicinal garden on a college campus can confer major value and benefits to the surrounding academic community and society.




**List of Floral groups:**

| Name of Plants at our APC College premises | | | | |
|---|---|---|---|---|
| **Sl** | **Scientific name** | **Common name** | **Family** | **No. of plant** |
| | *Ficus elastica* Roxb. | Rubber tree. | Moraceae | |

| | | | | |
|---|---|---|---|---|
| | ex Hornem. | | | |
| | *Delonix regia* (Boj. ex Hook.) Raf. | Gulmohor | Fabaceae | |
| | Peltophorum pterocarpum (DC.) K.Heyne | Radhachura | Fabaceae | |
| | *Casuarina equisetifolia* L. | Jhau | Casuarinaceae | |
| | *Lagerstroemia speciosa* (L.) Pers. | Jarul | Lythraceae | |
| | *Samanea saman* (Jacq.) Merr. | Shirish | Fabaceae | |
| | *Swietenia mahagoni* (L.) Jacq. | Mehagoni | Meliaceae | |
| | *Alstonia scholaris* L.R.Br. | Chhatim | Apocynaceae | |
| | Polyalthia lingifolia (Sonn.) Thwaites | Debdaru | Annonaceae | |
| | Tectona grandis L.f. | Segun | Verbanaceae | |
| | Areca catechu L. | Supari | Arecaceae | |
| | Terminalia arjuna (Roxb)Wight& Arn | Arjun | Combretaceae | |
| | Acacia auriculiformis A.Cunn.ex.Benth | Sonajhuri | Fabaceae | |
| | Dalbergia sisoo Roxb. | Shisoo | Fabaceae | |
| | Ficus religiosa L. | Ashwattha | Moraceae | |
| | Psidium guajava L. | Peyara | Myrtaceae | |
| | Mangifera indica L. | Aam | Anacardiaceae | |
| | Syzygium cumini (L.) Skeels | Jam | Myrtaceae | |
| | Mimusops elengi L. | Bakul | Sapotaceae | |
| | Neolamarckia cadamba (Roxb.)Bosser | Kadam | Rubiaceae | |
| | Bambusa ventricosa Mc. | Ghati bansh | Poaceae | |

| | | | | |
|---|---|---|---|---|
| | Clure | | | |
| | Syzygium samarangense (Blume) Merr. & L.M.Perry[ | Jamrul | Myrtaceae | |
| | | Narkel | Arecaceae | |
| | Carissa carandas L. | Karamcha | Apocynaceae | |
| | Citrus limetta Risso | Lebu | Rutaceae | |
| | Ziziphus mauritiana Lam. | Kul | Rhamnaceae | |
| | Tecoma stans (L.) Juss. ex Kunth | Chandra prava | Bignoniaceae | |
| | Nerium oleander L. | Karabi | Apocynaceae | |
| | Uraria picta (Jacq.) Desv. ex DC. | Prishniparni | Fabaceae | |
| | Terminalia chebula Retz. | Haritaki | Combretaceae | |
| | Hibiscus rosa-sinensis | Joba | Malvaceae | |
| | Thuja occidentalis L | Jhau | Cupressaceae | |
| | Roystonea regia | Palm | Arecaceae | |
| | Euphorbia milii Des Moul. | Kata mukut | Euphorbiaceae | |

**7. Conclusion:** The Kachrapara College's green audit identifies some areas that should be improved to advance sustainability initiatives on campus. Reduced energy use, better waste management, optimized water use, sustainable transportation options, and raised environmental awareness can all result from implementing the suggested solutions. Kachrapara College can set an example of environmental stewardship for its students and contribute to a cleaner future by implementing these improvements.

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(e) Gather information:

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(q) Develop an action plan:
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(s) Continuous improvement:

The methodology adopted to conduct the Green Audit of the Institution had the following components.

**3.1. On-site Visit :**

The Green Audit Team carried out the five-day field trip. The tour's main goal was to evaluate the Institution's waste management procedures, energy conservation tactics, and other aspects of its green cover. The protocols for sample collection, preservation, and analysis were followed scientifically.

**3.2. Focus Group Discussion :**

The nature club, staff, and management members participated in focus group discussions on various facets of the green audit. Identification of attitudes and awareness towards environmental issues at the institutional and local levels was the main topic of discussion.

**3.3. Energy and waste management Survey:**

The audit team evaluated the college's waste generation, disposal, and treatment facilities as well as its energy usage pattern with the assistance of teachers and students. A comprehensive questionnaire survey method was used to carry out the monitoring.

## 4. Target Areas of Green Auditing:

A process for resource management includes a green audit. The actual usefulness of green audits lies in the fact that they are conducted at predetermined intervals and that the results might show improvement or change over time, even though they are individual events. The concept of an eco-campus primarily emphasizes the effective use of energy and water, the reduction of waste output or pollution, and economic efficiency.
These indications are evaluated during the "Green Auditing of this Educational Institute" procedure. In order to reduce emissions, obtain a reliable and affordable energy supply, promote personal responsibility, encourage and improve energy conservation, reduce the institute's energy and water use, reduce waste going to landfills, and incorporate environmental considerations into all contracts and services deemed to have significant environmental impacts, Eco-campus focuses on these goals. Water, energy, trash, and green campus are the focus topics for this green audit.

**4.1. Energy Consumption:**

**4.1.1. Lighting:** The audit showed that many of the college's lighting fixtures were ineffective and outdated. It is advised to use natural light whenever possible, add occupancy sensors, and swap out conventional light bulbs for energy-efficient LED ones.

**4.1.2. Heating, Ventilation, and Air Conditioning (HVAC):**

The HVAC systems were discovered to be working less efficiently than necessary. Energy usage can be considerably decreased by switching to energy-efficient HVAC equipment, using programmable thermostats, and performing routine maintenance.

**4.1.3. Energy Awareness:** The college should promote energy conservation practices among employees and students. Campaigns, educational activities, and financial incentives for energy-saving projects can all help achieve this.

| Electrical device/items | Number | Power (watt) | Usage time (hr/day) |
|---|---|---|---|
| Normal Tubelight | 50 | 3000 | 10:00 am to 5:00 pm |
| LED Tubelight | 730 | 29200 | Do |
| Normal Bulb | 0 | 0 | Do |
| LED Bulb | 20 | 500 | Do |
| Ceiling Fan | 285 | 17100 | Do |
| Wall fan | 44 | 2640 | Do |


**In offices and in classrooms, we have replaced common tubes with low-watt LED tubes. We obtain sufficient illumination with low-wattage led tubes. As a result of this, we conserve power.**

**Note: The fact that all of the power switches are active, demonstrates that the electrical equipment is being maintained properly.**

| | |
|---|---|
|  |  |
| **LED Bulb & save energy** | **Performing routine maintenance on electrical fans. The accumulation of dust and debris can hinder the fan's performance. Regular cleaning of the grilles, blades, and motor housing is necessary to maintain optimal operation, ensure smooth airflow & save energy.** |

**Silent DG sets are designed to generate a very low level of background noise, just as their name suggests. Their structures are constructed to eliminate virtually all noise and vibrations due to careful design. Because of this, they are not harmful to the environment and are ideally suited for use in residential areas.**

## 4.2. Waste Management:

**4.2.1. Recycling:** Although there were recycling containers all across the campus, the audit showed that there was a lack of effective separation and information about recyclable products. Increased recycling rates can be achieved by upgrading signage, giving clear instructions and implementing a comprehensive recycling education programme.

**4.2.2. Composting:** The institution can set up a composting system to handle the organic waste produced by Hostel members (Boys & Girls Hostel). Composting can help drastically reduce the quantity of garbage dumped in landfills while also producing beneficial compost for campus landscaping and gardening.

**Table: Different types of waste generated in the college and their disposal**

| Types of waste | Particulars | Disposal method |
|---|---|---|
| E-Waste | Computers, electrical and electronic parts | Store these in a separate tank, and we can start selling them directly after a certain amount of time. |
| Plastic waste | Pen, Refill, Plastic water bottles and other plastic containers, wrappers etc | Items made of plastic that are only intended to be used once, such as bottles, jars, and bags. Encourage people to use water bottles and other containers that may be reused. Establish distinct recycling containers for plastic garbage, and after a predetermined period of time, we will be able to begin selling the collected recyclables directly. |
| Solid wastes | Paper waste, Damaged furniture, paper plates, food wastes | Reuse after maintenance energy conversion. Installing composting systems on a college campus will allow for the |

| | | |
|---|---|---|
| | | conversion of discarded food into nutrient-dense compost that may be used in the campus landscaping or in community gardens. Another option is for institutions to form partnerships with farmers in the surrounding area to collect food waste. |
| Chemical wastes | Laboratory waste | Water should be used to neutralise. When dealing with hazardous garbage, adhere strictly to all safety regulations. |
| Wastewater | Washing, urinals, bathrooms | Soak pits |
| Glass waste | Broken glass wares from the labs | Glass debris should be kept separate from other recyclable materials and disposed of in containers that are specifically intended for glass recycling. Make sure that you recycle glass in the correct manner by coordinating with the local recycling centers. |
| Sanitary Napkin | - | Napkin Incinerators |

## 4.3. Water Usage:

**4.3.1. Water Fixtures:** Numerous locations within the college had outdated and ineffective water fixtures, which caused excessive water use. Water resources can be saved by swapping these fixtures for low-flow models and encouraging staff and students to practice water-saving habits.

## Water management table:

| Water Management Tasks | Frequency | Responsible Party |
|---|---|---|
| Routine examination of water supplies | Monthly | Green Audit Working Team |
| Testing for drinking water quality | Half-yearly | Do |
| Awareness of water conservation | Half-yearly | Green Audit Working Team & various department |
| Infrastructure for water distribution that needs upkeep and repair | As needed | Caretaker |
| Reporting and analysis of water use | Annually | Green Audit Working Team & Caretaker |
| Learn what causes excessive water consumption. | As needed | Caretaker |

**Regular Maintenance of Water Tanks**

## Tabular data detailing the subject at hand:

| Sl No | Parameters | Response |
|---|---|---|
| **1** | Source of water | Municipality, Underground, Pond (1500 sqft) & Rain Harvesting Water<br>**Note:** The ground's water serves as a drinking water supply for around 4,500 people, including students and staff members. |

| | | |
|---|---|---|
| **2** | Source of Drinking Water | Ground's water |
| **3** | Any treatment for drinking water | Nil<br>**Note:** Water purifiers have been installed in 1-2 numbers on each floor and are maintained for 3–4 months afterward. |
| **4** | What is the total number of motors that are used? | 02 numbers |
| **5** | What is the total number of water tanks? Capacity of tank | 12 numbers@ 1000 liters each |
| **6** | Tap water | 220 numbers |
| | Quantity of water pumped every day | 18000 liters/per day |
| **7** | Do you waste water, and if so, why? | No |
| **8** | How much water is required for gardening purposes? | 600 liters/per day |
| **9** | How many water coolers are there in total? | 02 |
| **10** | Do you have access to rainwater harvesting? | Yes |
| **11** | The number of units harvested and the total volume of water | 01 number, We have constructed a water canal to connect a college pond that is 1500 square feet and 5,000 liters of tanks to store rainwater. |
| **12** | Any leaky taps | None |
| **13** | Daily amount of water that is lost. | Not applicable |
| **14** | Is there any kind of plan for the management of water? | Raise public awareness regarding the importance of water conservation, the prevention of pollution, and the implementation of sustainable water management practices. Unambiguous water rights and equitable water allocation regulations should be |

| | | |
|---|---|---|
| | | established to ensure that water is distributed fairly among the many different users. |
| **15** | Have any methods for conserving water been implemented? | Rainwater Harvesting |

**4.4. Transportation:**

**4.4.1. Public Transport:** The college's carbon footprint can be significantly reduced by encouraging employees and students to use public transport. Sustainable transport solutions can be promoted by offering cheap bus passes, encouraging carpooling, and supporting bicycle infrastructure.

<table>
<tr><td rowspan="2"> 
</td><td>Students</td><td>Employee</td><td>Total</td></tr>
<tr><td colspan="3">Average numbers over 6 days in a peak session</td></tr>
<tr><td>Bicycles are being used as modes of transportation for getting to and around the college by students, non-teaching staff and teaching staff.</td><td>Girls-172<br>Boys-81</td><td>28</td><td>281</td></tr>
</table>

**4.4.2. Electric Vehicles:** To aid in the switch to electric transport, the college may choose to invest in infrastructure for charging EVs. Additionally, encouraging the use of electric vehicles through awareness programs and incentives can help lower the emissions produced by on-campus transportation.

**Scooter with an electric motor that is utilized by a member of the college's faculty. There are large numbers of electric motor cycles that both our pupils and our employees use.**

### 4.5. Overall Environmental Awareness:

**4.5.1. Curriculum Integration:** The institution can integrate environmental awareness and sustainability into its curriculum across various subject areas. This strategy will guarantee that students receive instruction and training in environmental stewardship, encouraging sustainable thinking.

| Environmental awareness across different subjects | Parameters | Program time |
|---|---|---|
| Language Arts | Discuss texts from literature that are in some way connected to topics concerning the environment, such as conservation or environmental advocacy. Compose poetry or essays that argue for the protection of the environment and use persuasion. Conduct research on a variety of | Whole year |

| | | |
|---|---|---|
| | environmental topics, then present your findings. Through various awareness programs, they understand the environmental laws and regulations that apply on the local, national, and international levels. Discuss the roles that governments, NGOs, and people play in the effort to solve environmental problems. Investigate the environmental concerns from both a historical and cultural point of view. | |
| Arts | Investigate the causes of climate change and possible solutions to the problem. Analyse the impact that human activities have had on different landscapes as well as the distribution of natural resources. Studies should be done on urbanization, logging, and industry's impact on the natural environment. Investigate geographical approaches to resolving environmental issues, such as environmentally responsible land management planning. | Whole year |
| Pure Science | Conduct studies on environmental issues, such as assessing water quality, soil analysis, power consumption or recycling. To better comprehend environmental patterns and forecasts, consider using mathematical models. Investigate the repercussions of environmental actions on the economy, such as doing cost-benefit analyses for environmentally friendly projects. | Half-yearly/ each program |
| Bio-Science | Study subjects include ecosystems, biodiversity, and the interconnectedness of all living things. | Whole year |
| Physical Education | Encourage students to develop an appreciation for the natural world by having them participate in outdoor sports and activities. Talk about the significance of physical activity for both one's own health and the health of the environment (for example, taking bike | Whole year |

| | | |
|---|---|---|
| | instead of the car). | |
| NSS | To enhance the amount of green cover and fight deforestation, organizing tree-planting events in local communities and educational institutions is important. To combat littering and to encourage a clean environment, it is important to organize routine clean-up efforts in public places like parks and beaches. To educate both students and members of the general public about environmental issues such as climate change, waste management, renewable energy, and conservation, workshops and seminars should be organized. It should be a priority to create opportunities for individuals to engage with the natural world and develop a sense of ownership over its preservation through participating in hikes and other outdoor activities. To raise awareness about environmental issues and motivate people to take action, you might use social media, posters, and booklets. | Whole year |



**Plantation Programmes**

**4.5.2. Student Engagement:** A culture of sustainability can be promoted among students by supporting student-led projects, creating environmental groups, and holding awareness events and workshops.

## 5. Green Campus:

### 5.1. Floral Diversity:

The following are some actions to take into account when setting up a plantation programme at your college:

-Organise a group of academics, employees, and students who are interested in managing the plantation programme. Assign roles and duties to make the execution go smoothly.

-Consult with local forestry professionals or environmental groups to discover native or adapted tree species that are well-suited to the climate, soil, and goal of the plantation programme. Research and choose suitable tree species.

-To obtain the necessary approvals or permits for planting trees on campus or in the neighborhood, check with the college administration or other appropriate authorities.

- Look into possible funding options, including grants, sponsorships, or collaborations with nearby companies or environmental organizations. This will aid in defraying the price of buying trees, equipment, and other required supplies.

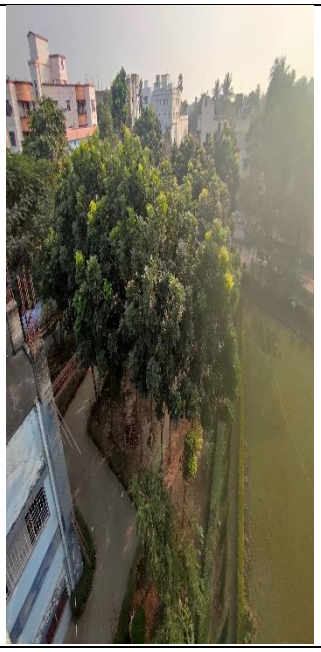
- Establish the plantation event's date, time, and venue. Plan the delivery of the trees, tools, and equipment to the planting location. Make sure that safety precautions are in place, including appropriate instruction on planting methods and equipment use.

-Promote the planting programme within the campus community by using various communication channels, such as posters, social media, emails, and word-of-mouth, in order to raise awareness and find volunteers. Encourage everyone to volunteer, including alumni, faculty, staff, and students.

-Volunteers should be gathered at the planting site on the appointed planting day. Give them the equipment, instructions, and direction they need to plant trees correctly. Foster a sense of accomplishment and community pride while fostering teamwork.

-Stress the significance of taking care of the freshly planted trees. This could entail routine weeding, mulching, watering, and pest or disease inspection. To guarantee the long-term well-being and survival of the trees, think about setting up a system for volunteers or staff members.

-After the plantation programme, evaluate the impact and accomplishment of the effort. Keep an eye on the trees' growth and survival rate. To determine areas for improvement and to organize upcoming plantation programmes, collect participant and stakeholder input.

**Floral Diversity of the Campus**

**The aesthetic attractiveness of the college campus is enhanced by a football field with lush grassland, which makes the institution more welcoming and appealing to students, professors and visitors.**

### 5.2. Faunal Diversity:

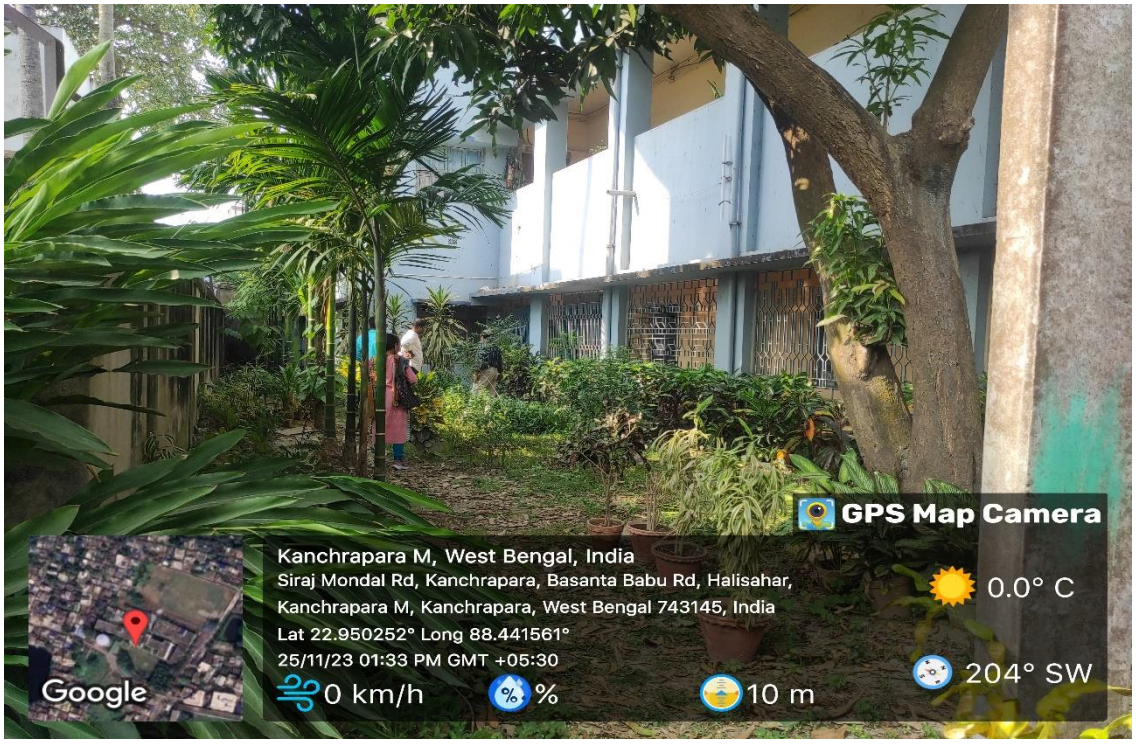
Studying faunal diversity can increase awareness about environmental challenges and conservation's significance. Colleges that are home to a wide variety of animal species may be more likely to adopt environmentally friendly policies and methods of operation to safeguard the campus environment and the people who live there.

**Birds Diversity:**

A population of birds that is rich in variety is indicative of an ecosystem that is robust and thriving. Seed dispersal, the control of insect populations, and pollination are just a few of the many important functions that different species of birds perform to help maintain ecological equilibrium. They provide a contribution to the campus's general diversity of flora and fauna.

## 6. Plantation of Wild type Medicinal plants:

Two medicinal gardens were developed at our college premises. Many wild medicinal plant varieties were lost daily due to anthropogenic activities and pollution. After identifying these plants, we conserve these through propagation in our medicinal gardens. Any interested people or agencies can access it through the proper channel. Medicinal garden is a specific area inside the grounds of a college that is dedicated to the cultivation and upkeep of a wide range of different sorts of medicinal plants. As an educational and research resource, it makes it possible for students, faculty members, and researchers to investigate and gain knowledge on medicinal plants' varied qualities and applications. Culturing a medicinal garden on a college campus can confer major value and benefits to the surrounding academic community and society.




**List of Floral groups:**

| Name of Plants at our APC College premises | | | | |
|---|---|---|---|---|
| **Sl** | **Scientific name** | **Common name** | **Family** | **No. of plant** |
| | *Ficus elastica* Roxb. | Rubber tree. | Moraceae | |

| | | | | |
|---|---|---|---|---|
| | ex Hornem. | | | |
| | *Delonix regia* (Boj. ex Hook.) Raf. | Gulmohor | Fabaceae | |
| | Peltophorum pterocarpum (DC.) K.Heyne | Radhachura | Fabaceae | |
| | *Casuarina equisetifolia* L. | Jhau | Casuarinaceae | |
| | *Lagerstroemia speciosa* (L.) Pers. | Jarul | Lythraceae | |
| | *Samanea saman* (Jacq.) Merr. | Shirish | Fabaceae | |
| | *Swietenia mahagoni* (L.) Jacq. | Mehagoni | Meliaceae | |
| | *Alstonia scholaris* L.R.Br. | Chhatim | Apocynaceae | |
| | Polyalthia lingifolia (Sonn.) Thwaites | Debdaru | Annonaceae | |
| | Tectona grandis L.f. | Segun | Verbanaceae | |
| | Areca catechu L. | Supari | Arecaceae | |
| | Terminalia arjuna (Roxb)Wight& Arn | Arjun | Combretaceae | |
| | Acacia auriculiformis A.Cunn.ex.Benth | Sonajhuri | Fabaceae | |
| | Dalbergia sisoo Roxb. | Shisoo | Fabaceae | |
| | Ficus religiosa L. | Ashwattha | Moraceae | |
| | Psidium guajava L. | Peyara | Myrtaceae | |
| | Mangifera indica L. | Aam | Anacardiaceae | |
| | Syzygium cumini (L.) Skeels | Jam | Myrtaceae | |
| | Mimusops elengi L. | Bakul | Sapotaceae | |
| | Neolamarckia cadamba (Roxb.)Bosser | Kadam | Rubiaceae | |
| | Bambusa ventricosa Mc. | Ghati bansh | Poaceae | |

| | | | | |
|---|---|---|---|---|
| | Clure | | | |
| | Syzygium samarangense (Blume) Merr. & L.M.Perry[ | Jamrul | Myrtaceae | |
| | | Narkel | Arecaceae | |
| | Carissa carandas L. | Karamcha | Apocynaceae | |
| | Citrus limetta Risso | Lebu | Rutaceae | |
| | Ziziphus mauritiana Lam. | Kul | Rhamnaceae | |
| | Tecoma stans (L.) Juss. ex Kunth | Chandra prava | Bignoniaceae | |
| | Nerium oleander L. | Karabi | Apocynaceae | |
| | Uraria picta (Jacq.) Desv. ex DC. | Prishniparni | Fabaceae | |
| | Terminalia chebula Retz. | Haritaki | Combretaceae | |
| | Hibiscus rosa-sinensis | Joba | Malvaceae | |
| | Thuja occidentalis L | Jhau | Cupressaceae | |
| | Roystonea regia | Palm | Arecaceae | |
| | Euphorbia milii Des Moul. | Kata mukut | Euphorbiaceae | |

**7. Conclusion:** The Kachrapara College's green audit identifies some areas that should be improved to advance sustainability initiatives on campus. Reduced energy use, better waste management, optimized water use, sustainable transportation options, and raised environmental awareness can all result from implementing the suggested solutions. Kachrapara College can set an example of environmental stewardship for its students and contribute to a cleaner future by implementing these improvements.

# Green Audit Report (2020-21)
# Of
# KANCHRAPARA COLLEGE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**Certificated ISO based**

## Contents:

## 1. Introduction:

Between the years 2020 and 2021, the Green Audit Committee at Kachrapara College carried out a comprehensive environmental review of the institution. This audit's primary objective was to analyse the college's overall sustainability initiatives, as well as the college's ecological effect, energy consumption, waste management practices, and trash disposal procedures. This report provides an overview of the most important findings, recommendations, and a proposed action plan to enhance the environmental performance of the college.

## Green Audit Working Team (2019-20):

| Sl No | Name of the Members | Designation |
|---|---|---|
| 1 | Dr. Pranab Kumar Bera | Principal |
| 2 | Dr. Subhro Ghoshal | IQAC Coordinator |
| 3 | Dr. Subhabrata De | Evening -In-Charge |
| 4 | Sandip Mallick | Bursar |
| 5 | Dr. Bimalendu Ghosh, | GB Member |
| 6 | Dr. Biswajit Kar, Department of environmental science | Member |
| 7 | Dr. Piyal Bhattacharya, Department of environmental science | Member |
| 8 | Ashoke Ghosal, Head Clerk | Member |
| 9 | Gopal Majumder, Accountant | Member |

| Sl No | Name of the Members and Designation | Signatures with Stamp |
|---|---|---|
| 1 | Dr. Pranab Kumar Bera, Principal | P. K. Bera<br>Principal<br>Kanchrapara College<br>Kanchrapara, 24 Pgs (N) |
| 2 | Dr. Pradip Kumar Biswas, IQAC Coordinator | Co-Ordinator<br>IQAC<br>Kanchrapara College<br>Kanchrapara, 24 Pgs (N) |
| 3. | Mr. Amalesh Kumar Mandal, Lead Auditor,Management System Consultancy | Amalesh Kr. Mandal |

| | | |
|---|---|---|
| 3 | Dr. Subhabrata De, Evening Incharge | Associate Professor<br>Kanchrapara College<br>P.O.-Kanchrapara, Dist.-24 Pgs.(N) |
| 4 | Sandip Mallick, Bursar | Bursar<br>Kanchrapara College |
| 5 | Dr. Bimalendu Ghosh, GB Member | Head of the Department<br>Department of Political Science<br>Kanchrapara College<br>Kanchrapara, North 24 Parganas |
| 6 | Dr. Biswajit Kar, Head, Department of Environmental Science, Member | Departmental-in-Charge<br>Department of Environmental Science<br>Kanchrapara College<br>Kanchrapara, North 24 Parganas |
| 8 | Ashoke Ghosal, Head Clerk, Member | Head Clerk (Offg.)<br>Kanchrapara College |

## 2. The Necessity of a Green Audit:

The need for green audits, also known as environmental audits or sustainability audits, is rising in today's society for a number of reasons.

**(a) Effects on the Environment:** Green audits help to assess and lessen an organization's harmful environmental impact. They analyse factors such as energy consumption, trash generation, water use, and emissions to find areas that could be improved to decrease environmental harm.

**(b) Conformity with Regulations:** The environmental regulations and rules that have been established in many countries must be followed by businesses. Green audits help companies adhere to standards so they can avoid penalties or other legal implications for non-compliance.

**(c) Savings on Expenses:** Green audits can identify inefficient practises and inefficiencies within a business, providing opportunities for cost savings. By studying energy use, resource consumption, and waste management, businesses can put strategies into practise to reduce operational costs and increase overall efficiency.

**(d) Reputation and the Expectations of Stakeholders:** Customers and other stakeholders now call organisations to adopt more environmentally friendly practises. Green audits promote trust among customers, employees, investors, and communities by demonstrating an organization's transparency and commitment to sustainability.

**(e) Risk Management:** Environmental hazards can have serious financial and reputational ramifications for firms, including pollution events, regulatory non-compliance, and supply chain interruptions. By evaluating environmental management systems, ensuring sufficient controls are in place, and putting preventative measures in place to deal with possible problems, green audits assist in identifying and mitigating these risks.

**(f) Continuous Improvement:** Green audits encourage a continuing commitment to sustainability rather than being one-time events. Organizations can see trends, set goals, and implement improvement initiatives by routinely evaluating and tracking environmental performance. This iterative process promotes a culture of sustainability and propels long-lasting transformation.

**(g) Sustainable Development Goals (SDGs):** An international framework for solving urgent environmental and social issues is provided by the Sustainable Development Goals. Organizations can better align their operations with these objectives with the aid of green audits, paving the way for a more just and sustainable future. Green audits are essential to evaluate, enhance, and confirm environmental performance. They allow companies to control risks, comply with rules, cut costs, improve reputations, and support sustainable development.

## 3. Methodology for Green Audit:

Audits of an organization's environmental performance and practices are known as "green," "environmental," or "sustainability" audits. They entail assessing the company's influence on the environment, resource usage, waste management, and adherence to environmental legislation. Here is a procedure for carrying out a green audit:

(a) Planning:

(b) Identify audit team and resources:

(c) Develop an audit plan: Create a detailed plan outlining audit activities, timelines, responsibilities, and communication channels.

(d) Data Collection:

(e) Gather information:

(f) Conduct site visits and interviews:

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The methodology adopted to conduct the Green Audit of the Institution had the following components.

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The Green Audit Team carried out the five-day field trip. The tour's main goal was to evaluate the Institution's waste management procedures, energy conservation tactics, and other aspects of its green cover. The protocols for sample collection, preservation, and analysis were followed scientifically.

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The nature club, staff, and management members participated in focus group discussions on various facets of the green audit. Identification of attitudes and awareness towards environmental issues at the institutional and local levels was the main topic of discussion.

**3.3. Energy and waste management Survey:**

The audit team evaluated the college's waste generation, disposal, and treatment facilities as well as its energy usage pattern with the assistance of teachers and students. A comprehensive questionnaire survey method was used to carry out the monitoring.

## 4. Target Areas of Green Auditing:

An environmental audit is one of the steps involved in the process of resource management. Green audits are useful despite the fact that they are one-off occurrences. This is due to the fact that they are carried out on a regular basis, and the results of the audits might shift or get better over time. The concept of an eco-campus centers primarily on making effective use of water and energy while simultaneously reducing pollution and the amount of trash produced.

Several indicators will be evaluated during the "Green Auditing of this Educational Institute" procedure. Eco-campus focuses on these goals in order to reduce emissions, obtain a reliable and affordable energy supply, encourage and improve energy conservation, decrease the institute's energy and water use, reduce the amount of waste that is sent to landfills, and incorporate environmental considerations into all contracts and services that are thought to have significant environmental impacts. Eco-campus also focuses on these goals in order to improve the quality of life on campus. The water, the electricity, the rubbish, and the green campuses are the key focuses of this environmental audit.

### 4.1. Energy Consumption:

**4.1.1. Lighting:** According to the findings of the audit, a significant number of the college's lighting fixtures are both inefficient and out of date. It is recommended to make advantage of natural light whenever it is feasible, to install occupancy sensors, and to replace traditional light bulbs with LED light bulbs that are more energy efficient.

**4.1.2. Heating, Ventilation, and Air Conditioning (HVAC):**

It was found that the HVAC systems were operating at a lower level of efficiency than was required. Switching to heating, ventilation, and air conditioning (HVAC) equipment that is more energy-efficient, installing thermostats that are programmable, and keeping up with normal maintenance can significantly cut energy consumption.

**4.1.3. Energy Awareness:** Both the faculty and the student body should be encouraged to engage in energy-saving behaviours by the college. Campaigns, instructional activities, and financial incentives for projects that save energy are all potential ways to assist in accomplishing this goal.

**Details electrical requirements:**

| Electrical device/items | Number | Power (watt) | Usage time (hr/day) |
|---|---|---|---|
| Normal Tubelight | 50 | 300 | 10:00 am to 5:00 pm |
| LED Tubelight | 730 | 29200 | Do |
| Normal Bulb | 30 | 900 | Do |
| LED Bulb | 40 | 1200 | Do |
| Ceiling Fan | 290 | 17400 | Do |
| Wall fan | 44 | 2640 | Do |

**Silent DG sets are designed to generate a very low level of background noise, just as their name suggests. Their structures are constructed to eliminate virtually all noise and vibrations due to careful design. Because of this, they are not harmful to the environment and are ideally suited for use in residential areas.**

## 4.2. Waste Management:

**4.2.1. Recycling:** Despite the fact that recycling canisters were located all around the campus, the audit indicated that there was insufficient separation of recyclable materials and inadequate information regarding products that might be recycled. This was the case despite the fact that recycling canisters were located everywhere. An increase in the percentage of materials that are recycled can be accomplished in a number of different ways; some of these ways include making the signs clearer, providing instructions that are free of ambiguity, and carrying out an intensive recycling education programme.

**4.2.2. Composting:** At the organisation, composting facilities can be established so that the organic waste that is produced by the residents of the hostel (both boys and girls) can be disposed of in an appropriate manner. Composting not only produces useful compost that can be utilised for campus landscaping and gardening, but it also contributes greatly to a reduction in the amount of waste that is dumped in landfills. This is one of the many benefits of composting.

**Table: Different types of waste generated in the college and their disposal**

| Types of waste | Particulars | Disposal method |
|---|---|---|
| E-Waste | Computers, electrical and electronic parts | Store these in a separate tank, and we can start selling them directly after a certain amount of time. |
| Plastic waste | Pen, Refill, Plastic water bottles and other plastic containers, wrappers etc | Items made of plastic that are only intended to be used once, such as bottles, jars, and bags. Encourage people to use water bottles and other containers that may be reused. Establish distinct recycling containers for plastic garbage, and after a predetermined period of time, we will be able to begin selling the collected recyclables directly. |
| Solid wastes | Paper waste, Damaged furniture, paper plates, food wastes | Reuse after maintenance energy conversion. Installing composting systems on a college campus will allow for the conversion of discarded food into nutrient-dense compost that may be used in the campus landscaping or in community gardens. Another option is for institutions to form partnerships with farmers in the surrounding area to collect food waste. |
| Chemical wastes | Laboratory waste | Water should be used to neutralise. When dealing with hazardous garbage, adhere strictly to all safety regulations. |

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| Wastewater | Washing, urinals, bathrooms | Soak pits |
| Glass waste | Broken glass wares from the labs | Glass debris should be kept separate from other recyclable materials and disposed of in containers that are specifically intended for glass recycling. Make sure that you recycle glass in the correct manner by coordinating with the local recycling centers. |
| Sanitary Napkin | - | Napkin Incinerators |

## 4.3. Water Usage:

**4.3.1. Water Fixtures:** Numerous locations within the college had outdated and ineffective water fixtures, which caused excessive water use. Water resources can be saved by swapping these fixtures for low-flow models and encouraging staff and students to practice water-saving habits.

### Water management table:

| Water Management Tasks | Frequency | Responsible Party |
|---|---|---|
| Routine examination of water supplies | Monthly | Green Audit Working Team |
| Testing for drinking water quality | Half-yearly | Do |
| Awareness of water conservation | Half-yearly | Green Audit Working Team & various department |
| Infrastructure for water distribution that needs upkeep and repair | As needed | Caretaker |
| Reporting and analysis of water use | Annually | Green Audit Working Team & Caretaker |
| Learn what causes excessive water consumption. | As needed | Caretaker |

### Tabular data detailing the subject at hand:

| Sl No | Parameters | Response |
|---|---|---|
| **1** | Source of water | Municipality, Underground, Pond (1500 sqft) & Rain Harvesting Water<br>**Note:** The ground's water serves as a drinking water supply for around 4,500 people, including students and staff members. |
| **2** | Source of Drinking Water | Ground's water, 16 numbers water purifier |
| **3** | Any treatment for drinking water | Nil, 16 numbers water purifier<br>**Note:** Water purifiers have been installed in 1-2 numbers on each floor and are maintained for 3–4 months afterward. |
| **4** | What is the total number of motors that are used? | 02 numbers |
| **5** | What is the total number of water tanks? Capacity of tank | 12 numbers@ 1000 liters each |
| **6** | Tap water | 220 numbers |
| | Quantity of water pumped every day | 12000 liters/per day |
| **7** | Do you waste water, and if so, why? | No |
| **8** | How much water is required for gardening purposes? | 500 liters/per day |
| **9** | How many water coolers are there in total? | 02 |
| **10** | Do you have access to rainwater harvesting? | Yes |
| **11** | The number of units harvested and the total volume of water | 01 number, We have constructed a water canal to connect a college pond that is 1500 square feet and 5,000 liters of tanks to store rainwater. |
| **12** | Any leaky taps | None |
| **13** | Daily amount of water that is lost. | Not applicable |

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| **14** | Is there any kind of plan for the management of water? | Raise public awareness regarding the importance of water conservation, the prevention of pollution, and the implementation of sustainable water management practices. Unambiguous water rights and equitable water allocation regulations should be established to ensure that water is distributed fairly among the many different users. |
| **15** | Have any methods for conserving water been implemented? | Rainwater Harvesting |

**4.4.1. Public Transport:** Cycle, van, Rikhsha, Train, bus etc.

**4.5. Overall Environmental Awareness:**

**4.5.1. Curriculum Integration:** The institution can incorporate environmental consciousness and sustainable practices into its curriculum in a variety of topic areas. Students will be provided with teaching and training in environmental stewardship thanks to this technique, which will also encourage them to think in a sustainable manner.

**Environmental awareness:**

| Environmental awareness across different subjects | Parameters | Program time |
|---|---|---|
| Language Arts | Discuss texts from literature that are in some way connected to topics concerning the environment, such as conservation or environmental advocacy. Compose poetry or essays that argue for the protection of the environment and use persuasion. Conduct research on a variety of environmental topics, then present your findings. Through various awareness programs, they understand the environmental laws and regulations that apply on the local, national, and | Whole year |

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| | international levels. Discuss the roles that governments, NGOs, and people play in the effort to solve environmental problems. Investigate the environmental concerns from both a historical and cultural point of view. | |
| Arts | Investigate the causes of climate change and possible solutions to the problem. Analyse the impact that human activities have had on different landscapes as well as the distribution of natural resources. Studies should be done on urbanization, logging, and industry's impact on the natural environment. Investigate geographical approaches to resolving environmental issues, such as environmentally responsible land management planning. | Whole year |
| Pure Science | Conduct studies on environmental issues, such as assessing water quality, soil analysis, power consumption or recycling. To better comprehend environmental patterns and forecasts, consider using mathematical models. Investigate the repercussions of environmental actions on the economy, such as doing cost-benefit analyses for environmentally friendly projects. | Half-yearly/ each program |
| Bio-Science | Study subjects include ecosystems, biodiversity, and the interconnectedness of all living things. | Whole year |
| Physical Education | Encourage students to develop an appreciation for the natural world by having them participate in outdoor sports and activities. Talk about the significance of physical activity for both one's own health and the health of the environment (for example, taking bike instead of the car). | Whole year |
| NSS | To enhance the amount of green cover and fight deforestation, organizing tree-planting events in local communities and educational institutions is important. To | Whole year |

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| | combat littering and to encourage a clean environment, it is important to organize routine clean-up efforts in public places like parks and beaches. To educate both students and members of the general public about environmental issues such as climate change, waste management, renewable energy, and conservation, workshops and seminars should be organized. It should be a priority to create opportunities for individuals to engage with the natural world and develop a sense of ownership over its preservation through participating in hikes and other outdoor activities. To raise awareness about environmental issues and motivate people to take action, you might use social media, posters, and booklets. | |


**Plantation Programmes**

**4.5.2. Student Engagement:** A culture of sustainability can be promoted among students by supporting student-led projects, creating environmental groups, and holding awareness events and workshops.

## 5. Green Campus:

### 5.1. Floral Diversity:

The following are some actions to take into account when setting up a plantation programme at your college:

-Organise a group of academics, employees, and students who are interested in managing the plantation programme. Assign roles and duties to make the execution go smoothly.

-Consult with local forestry professionals or environmental groups to discover native or adapted tree species that are well-suited to the climate, soil, and goal of the plantation programme. Research and choose suitable tree species.

-To obtain the necessary approvals or permits for planting trees on campus or in the neighborhood, check with the college administration or other appropriate authorities.

- Look into possible funding options, including grants, sponsorships, or collaborations with nearby companies or environmental organizations. This will aid in defraying the price of buying trees, equipment, and other required supplies.

- Establish the plantation event's date, time, and venue. Plan the delivery of the trees, tools, and equipment to the planting location. Make sure that safety precautions are in place, including appropriate instruction on planting methods and equipment use.

-Promote the planting programme within the campus community by using various communication channels, such as posters, social media, emails, and word-of-mouth, in order to raise awareness and find volunteers. Encourage everyone to volunteer, including alumni, faculty, staff, and students.

-Volunteers should be gathered at the planting site on the appointed planting day. Give them the equipment, instructions, and direction they need to plant trees correctly. Foster a sense of accomplishment and community pride while fostering teamwork.

-Stress the significance of taking care of the freshly planted trees. This could entail routine weeding, mulching, watering, and pest or disease inspection. To guarantee the long-term well-being and survival of the trees, think about setting up a system for volunteers or staff members.

-After the plantation programme, evaluate the impact and accomplishment of the effort. Keep an eye on the trees' growth and survival rate. To determine areas for improvement and to organize upcoming plantation programmes, collect participant and stakeholder input.

To encourage participation in the upkeep and preservation of the grassland, the institution's students, instructors, and staff should be encouraged to do so. Volunteer initiatives, instructional workshops, and awareness campaigns are all effective ways for reaching this objective. On grasslands, it is possible for many different kinds of plants and animals to flourish. By providing a home for a wide variety of plant and animal species and so making a contribution to the preservation of ecological equilibrium, a grassland promotes a higher level of biodiversity on a campus. Grasslands have the ability to collect carbon dioxide from the air and store it in their soil, which helps in the fight against climate change by lowering overall levels of greenhouse gases.


**Fig. College ground field.**

The ability of the campus to maintain a healthy ecological balance is greatly dependent on the presence of ponds. They contribute to the recharging of groundwater supplies, help to limit the amount of erosion that occurs in the surrounding area, and support the ecology of the area by providing a habitat for a diverse array of flora and fauna.

### 5.2. Faunal Diversity:

Studying faunal diversity can increase awareness about environmental challenges and conservation's significance. Colleges that are home to a wide variety of animal species may be more likely to adopt environmentally friendly policies and methods of operation to safeguard the campus environment and the people who live there.

**Birds Diversity:**

A population of birds that is rich in variety is indicative of an ecosystem that is robust and thriving. Seed dispersal, the control of insect populations, and pollination are just a few of the many important functions that different species of birds perform to help maintain ecological equilibrium. They provide a contribution to the campus's general diversity of flora and fauna.

-Dove- *Streptopelia risoria*-Highest numbers in a day. Very common in the gardens
-Pigeon- *Columba livia*- Second highest numbers in a day. Very common on the college premises.
- The Indian Pond Heron (*Ardeola grayii*), is a species of heron that is very available
-Kingfisher (*Alcedo atthis*): Very common
- The Common Myna (*Acridotheres tristis*), is a species of bird that lives in college premises and is famous for its ability to imitate human speech as well as other sounds.
-Oriental Magpie Robin (*Copsychus saularis*) – Very available at our college campus
-House Sparrow (*Passer domesticus*) – Very common
- Rose-ringed Parakeet (*Psittacula krameri*)- Rare
- Common Tailorbird (*Orthotomus sutorius*)-Very common
- Coppersmith Barbet (*Psilopogon haemacephalus*)-Very rare

**Butterfly:**
Seasonally found the following butterflyes-
Peacock Pansy (*Junonia almanac*), Plain Tiger (*Danaus chrysippus*), Common Albatrosses (*Appias albina*), Blue Mormon (*Papilio polymnestor*), Grey Pansy (*Junonia atlites*), Blue tiger (*Tirumala limniace*), Tailed Jay (*Graphium agamemnon*), Common Grass Yellow (*Eurema hecabe*), Common Mormon (*Papilio polytes*), Common Caster (*Ariadne merione*), Common Rose (*Pachliopta aristolochiae*), Palm Fly (*Elymnias hypermnestra*) and Common Crow (*Euploea core*).

## 6. Wild type Medicinal plants at mededicinal garden:

Two medicinal gardens were developed at our college premises. Many wild medicinal plant varieties were lost daily due to anthropogenic activities and pollution. After identifying these plants, we conserve these through propagation in our medicinal gardens. Any interested people or agencies can access it through the proper channel. Medicinal garden is a specific area inside the grounds of a college that is dedicated to the cultivation and upkeep of a wide range of different sorts of medicinal plants. As an educational and research resource, it makes it possible for students, faculty members, and researchers to investigate and gain knowledge on medicinal plants' varied qualities and applications. Culturing a medicinal garden on a college campus can confer major value and benefits to the surrounding academic community and society.

**Table: List of wild types of medicinal plants at the premises of Kachrapara College**

| | | | |
|---|---|---|---|
| Sl. No. 1 | Binomial name: *Syzygium aromaticum* (L) Merril & Perry<br>Family: Mytraceae<br>Common name: Labanga<br>Habit: Tree<br>Parts used: Dried flower bud, leaves<br>Medicinal use: Clove oil is used as a pain killer, for dental problems, used for the treatment of hernia, Stomach upset and as an expectorant. | Sl. No. 2 | Binomial name: *Barleria prionitis* L.<br>Family: Acanthaceae<br>Common name: Bazradanti<br>Habit: Herb<br>Parts used: Leaves<br>Medicinal use: Leaf juice is used to prevent tissue maceration, stop gum bleeding, and as an expectorant. |
| Sl. No. 3 | Binomial name: *Glycosmis pentaphyla* (Retz) Correa<br>Family: Rutaceae<br>Common name: Ash shaowra<br>Habit: Shrub<br>Parts used: Leaves and stem<br>Medicinal use: Leaves are used for fever, liver complaints, and stem for ulcer. | Sl. No. 4 | Binomial name: *Trema orcientalis* (L) Blume<br>Family: Cannabaceae<br>Common name: Jibanti<br>Habit: Tree<br>Parts used: Leaves and bark<br>Medicinal use: Leaves & bark are used for cough, sore throat, asthma, and yellow fever. |
| Sl. No. 5 | Binomial name: *Blumea lacera* ( Burm. F.) Dc.<br>Family: Asteraceae<br>Common name: Bara cooksina<br>Habit: Herb<br>Parts used: Whole plant<br>Medicinal use: Leaves used for liver tonic, antipyretic, diuretic, ophthalmic. | Sl. No. 6 | Binomial name: *Clitoria ternatea* L.<br>Family: Fabaceae<br>Common name: Aporajita<br>Habit: Herb, Climber<br>Parts used: Leaves<br>Medicinal use: Leaves are used as memory enhancer, antidepressant, sedative agent. |
| Sl. No. 7 | Binomial name: *Aegel marmelos* (L) correa<br>Family: Rutaceae<br>Common name: Bel<br>Habit: Tree<br>Parts used: Whole plant, Leaves, Fruit<br>Medicinal use: Fruit pulp is use for laxative, jaundice, constipation | Sl. No. 8 | Binomial name: *Elaeocarpus serratus* L.<br>Family: Elaeocarpaceae<br>Common name: Jalpai<br>Habit: Tree<br>Parts used: Leaves and Fruits<br>Medicinal use: Leaves used for rheumatism and antitode of poison and fruit for dysentery. |
| Sl. No. 9 | Binomial name :<br>*Pogostemon cablin* (Blanco) Benth<br>Family: Lamiaceae<br>Common name: Pachouri<br>Habit: Herb<br>Parts used: Leaves<br>Medicinal use: Used in insect repellants, and antidepressant. | Sl. No. 10 | Binomial name: *Cympogon citrus* (L.) Spreng<br>Family: Poaceae<br>Common name: Lebughash<br>Habit: Herb<br>Parts used: Leaves<br>Medicinal use: Pesticide, insecticide & antifungal and antibacterial and also used as insect repellent. |
| Sl. No. | Binomial name: *Ocimum tenuiflorum* L.<br>Family: Lamiaceae | Sl. No. | Binomial name: *Stephania japonica* (Thumb). Micrs |

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| 11 | Common name: Krishna Tulsi<br>Habit: Herb<br>Parts used: Whole plant.<br>Medicinal use: Reduce chest congestion, germicide and tuberculosis. | 12 | Family: Menispermaceae<br>Common name: Nimukha<br>Habit : Climber, Herb<br>Parts used: Whole plant and Leaves.<br>Medicinal use: Leaves are used in fever, diarrhoea, dyspepsia. Root is used to treat fever, diarrhoea and urinary disease. |
| Sl. No. 13 | Binomial name: *Mikania scandense* B. L. Rob.<br>Family: Asteraceae<br>Common name: Jarman lata<br>Habit: Climbing Herb<br>Parts used: Leaves<br>Medicinal use: Gastric ulcer, wound insect bites stop bleeding from cut, It also has antimicrobial, antipyretic and anti-inflammatory properties. | Sl. No. 14 | Binomial name: *Aerva lantana* L.<br>Family: Amaranthaceae<br>Common name: Chaya<br>Habit: Herb<br>Parts used: Whole plant<br>Medicinal use: Antioxidant activity, stop abnormal bleeding in menstruation. |
| Sl. No. 15 | Binomial name: *Desmodium gangeticum* (L.) Dc.<br>Family: Fabaceae<br>Common name: Shalparni<br>Habit: Herb<br>Parts used: Leaves and roots<br>Medicinal use: Heart disease, rejuvenation, anti dysenteric | Sl. No. 16 | Binomial name: *Costus specious* (J. Koning.) C. Specht.<br>Family: Zingiberaceae<br>Common name: Keu<br>Habit: Herb<br>Parts used: Rhizome<br>Medicinal use: Anti-diabetic, to treat asthma, bronchitis and fever. |
| Sl. No. 17 | Binomial name: *Uraria picta* (Jack) Dc.<br>Family: Fabaceae<br>Common name: Prishiparni<br>Habit: Herb<br>Parts used: Whole plant, Leaves,<br>Medicinal use: Hear trouble, fractured bone, cough. | Sl. No. 18 | Binomial name: *Iresine herbstii* Hook. ex Lindl.<br>Family: Amaranthaceae<br>Common name: Lal vishyalikarani<br>Habit: Herb<br>Parts used: Leaves<br>Medicinal use: Healing property. |
| Sl. No. 19 | Binomial name: *Ruellia prostrata* L.<br>Family: Acanthaceae<br>Common name: Patpati<br>Habit: Herb<br>Parts used: Whole plant, Leaves<br>Medicinal use: Anti-cancerous against the epidermis of naso-pharynx. | Sl. No. 20 | Binomial name: *Barringtonia acutangula* (L) Gaertn.<br>Family: Lecythidaceae<br>Common name: Hijol<br>Habit: Herb<br>Parts used: Whole plant, Leaves.<br>Medicinal use: Seed extract for anti tumor and anti fungal. |
| Sl. No. 21 | Binomial name: *Madhuca longifollia* (J. Konig) J. F. Macbr<br>Family: Sapotaceae<br>Common name: Mahua<br>Habit: Tree<br>Parts used: Flower and Bark<br>Medicinal use: Bark used for tonsillitis, gum trouble, Flower used for stimulant, | Sl. No. 22 | Binomial name: *Cephalandra indica* (W. and A.) Naud<br>Family: Cucurbitaceae<br>Common name: Talakuch<br>Habit: Herb, Climber<br>Parts used: Whole plant<br>Medicinal use: Flower- Jaundice, Fruits- Leprosy, bronchitis, asthma, |

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| | laxative anti-helminthes, cough reliving, respiratory disorder. | | Leaves- Cough, skin disease, Root- Diabetes, gonorrhea. |
| Sl. No. 23 | Scientific name: *Hemidesmus indicus* R. Br.<br>Family: Asclepedaceae<br>Common name: Ananta mul<br>Habit: Herb<br>Parts used: Whole plant, Leaves,<br>Uses: Oligo-spermia, skin disease, piles, leucorrhoea. | Sl. No. 24 | Scientific name: *Syzazium jambos* L. (Aloston)<br>Family: Mytraceae<br>Common name: Jam<br>Habit: Tree<br>Parts used: Seeds and young Leaves<br>Uses: Diabetes (seed), dysentery, anti-inflammatory effect. |
| Sl. No. 25 | Scientific name: *Artemisia vulguris* L.<br>Family: Asteraceae<br>Common name: Nagdola<br>Habit: Herb<br>Parts used: Whole plant,<br>Uses: Malaria fever, worm repellant. | Sl. No. 26 | Scientific name: *Ocimum gratissimum* L.<br>Family: Lamiaceae<br>Common name: Chandan tulsi<br>Habit: Herb<br>Parts used: Whole plant,<br>Uses: Antiseptic, anti microbial property used in common cold and respiratory trouble. |
| Sl. No. 27 | Scientific name: *Morinda critifolia* L.<br>Family: Rubiaceae<br>Common name: Noni<br>Habit: Shrub<br>Parts used: Fruit and Leaves<br>Uses: Leaf, fruit, bark used to treat AIDS liver disease, small pox, cancer. | Sl. No. 28 | Scientific name: *Saraca asoca* (Roxb.) Willd.<br>Family: Fabaceae<br>Common name: Ashok<br>Habit: Tree<br>Parts used: Bark, leaves and seed<br>Uses: Dysmenorrhoea, depression, leucorrhoea. |
| Sl. No. 29 | Scientific name: *Vitex negundo* Linn.<br>Family: Verbaneceae<br>Common name: Nishinda<br>Habit: Herb<br>Parts used: Whole plant,<br>Uses: Skin disease eczema, ring worm, spleen enlargement, expectorant, bronchitis, asthma. | Sl. No. 30 | Scientific name: *Murraya koenigii* (L.) Spreng.<br>Family: Rutaceae<br>Common name: Kari Pata<br>Habit: Shrub<br>Parts used: Leaves<br>Uses: Anti-diabetic, also used to treat piles, inflammation, itching, dysentery. |
| Sl. No. 31 | Scientific name: *Withania somnifera* (L.) Kuntze<br>Family: Solanaceae<br>Common name: Awshagandha<br>Habit: Herb<br>Parts used: Seed, Leaves and root<br>Uses: Arthritis, anxiety, oligspermia, asthma, insomnia, ulcer and neurological disorder. | Sl. No. 32 | Scientific name: *Cissus quadrangularis* L.<br>Family: Vitaceae<br>Common name: Harjora<br>Habit: Climbing Herb<br>Parts used: Whole plant<br>Uses: Heal the broken bone and ligament. |
| Sl. No. 33 | Scientific name: *Amomum aromaticum* Roxb.<br>Family: Zingiberaceae<br>Common name: Alach<br>Habit: Herb | Sl. No. 34 | Scientific name: *Clerodendrum indicum* L.<br>Family: Verbenaceae<br>Common name: Bamunhati<br>Habit: small tree |

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| | Parts used: Seed<br>Uses: Anti oxidant, antiseptic, stomachic digestive. | | Parts used: Leaves<br>Uses: Allergy, asthma, fever, bronchitis, liver problem, tuberculosis. |
| Sl. No. 35 | Scientific name: *Psidium guajava* Linn.<br>Family: Mytraceae<br>Common name: Payara<br>Habit: Tree<br>Parts used: Fruits and Leaves<br>Uses: Fruit is used as a laxative and leaf is used for wound ulcers. | Sl. No. 36 | Scientific name: *Adhatoda vasica* Nees<br>Family: Acanthaceae<br>Common name: Vashak<br>Habit: Shrub<br>Parts used: Leaves<br>Uses: Bronchial disease, cough, expectorates |
| Sl. No. 37 | Scientific name: *Wedelia calendula* (L.) Less.<br>Family: Asteraceae<br>Common name: Bhringaraj<br>Habit: Herb<br>Parts used: Leaves,<br>Uses: Hair fall treatment, skin disease. | Sl. No. 38 | Scientific name: *Terminalia chebula* Retz.<br>Family: Combrataceae<br>Common name: Haritaki<br>Habit: Tree<br>Parts used: Fruits and seed<br>Uses: Laxative, digestive, purgative, and healing property. |
| Sl. No. 39 | Scientific name: *Asparagus racemosus* Willd<br>Family: Asparagaceae<br>Common name: Satamuli<br>Habit: Climber, Herb<br>Parts used: Roots and Leaves<br>Uses: Uterine tonic, hyper-acidity, galactogogue. | Sl. No. 40 | Scientific name: *Euphorbia tirucalli* L.<br>Family: Euphorbiaceae<br>Common name: Lankaseji<br>Habit: Herb<br>Parts used: Whole plant<br>Uses: Used for treatment of cancer, tomour. |
| Sl. No. 41 | Scientific name: *Justicia gendarusa* Burm. f.<br>Family: Acanthaceae<br>Common name: Bishahari<br>Habit: Herb<br>Parts used: Leaves<br>Uses: Asthma, rheumatism, colic of children | Sl. No. 42 | Scientific name: *Stachytarpheta jamaicensis* L.<br>Family: Verbenaceae<br>Common name: Jerbo<br>Habit: Herb<br>Parts used: Leaves<br>Uses: Fresh leaf juice used to treat asthma, stomach ulcer |
| Sl. No. 43 | Scientific name: *Coleus aromaticus* Benth.<br>Family: Lamiaceae<br>Common name: Aijawan<br>Habit: Herb<br>Parts used: Leaves<br>Uses: Treatment of cough, sore throat, nasal | Sl. No. 44 | Scientific name: *Centella asiatica* L.<br>Family: Apiaceae<br>Common name: Thankuni<br>Habit: Herb<br>Parts used: Leaves<br>Uses: Leaf extract is used for liver complaints, gastric trouble, skin disease, amoebic dysentery. |
| Sl. No. 45 | Scientific name: *Hygrophyla spinosa* T. Anderson<br>Family: Acanthaceae<br>Common name: Kulekhara<br>Habit: Herb<br>Parts used: Leaves | Sl. No. 46 | Scientific name: *Abutilon indicum* (L.) Sweet<br>Family: Malvaceae<br>Common name: Atibol<br>Habit: Shrubs<br>Parts used: Seeds and Bark |

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| | Uses: The leaf juice is used to treat anaemia, jaundice, and body pain. | | Uses: Seed used in piles, gonorrhea |
| Sl. No. 47 | Scientific name: *Alstonia scholaris* R. Br.<br>Family: Apocynaceae<br>Common name: Chatim<br>Habit: Herb<br>Parts used: Whole plant, Leaves,<br>Uses: The bark is used for digestive, antipyretic, laxative, malaria fever, tumor, ulcer, and cancer. | Sl. No. 48 | Scientific name: *Anacardium occidentali* L.<br>Family: Anacardiaceae<br>Common name: Kaju<br>Habit: Herb<br>Parts used: Whole plant, Leaves,<br>Uses: Root used as purgative, fruit used for skin disease. |
| Sl. No. 49 | Scientific name: *Acacia auriculiformis* A. Cunn. ex Benth.<br>Family: Mimosaceae<br>Common name: Sonajhuri<br>Habit: Herb<br>Parts used: Whole plant, Leaves,<br>Uses: Leaves used in dysentery. | Sl. No. 50 | Scientific name: *Bauhinia purpuria* L.<br>Family: Caesalpinaceae<br>Common name: Rakta kanchan<br>Habit: Herb<br>Parts used: Whole plant, Leaves<br>Uses: Bark used for skin disease, and ulcer, dried bud used in piles. |
| Sl. No. 51 | Scientific name: *Gardenia latifolia* G. Don<br>Family: Rubiaceae<br>Common name: Gandharaj<br>Habit: Herb<br>Parts used: Whole plant, Leaves<br>Uses: Root anti-helminths, antiseptic, dyspepsia, and nervous disorder. | Sl. No. 52 | Scientific name: *Mimosa pudica* L.<br>Family: Mimosaceae<br>Common name: Lajjabati<br>Habit: Herb<br>Parts used: Whole plant, Leaves<br>Uses: Leaves and roots are used in piles and fistula. |
| Sl. No. 53 | Scientific name: *Sanscvieria roxburghiana* Schult & Schult. f.<br>Family: Asperagaceae<br>Common name: Murga<br>Habit: Herb<br>Parts used: Whole plant, Leaves,<br>Uses: Plant sap has antiseptic qualities, and leaves are used for bandages. | Sl. No. 54 | Scientific name: *Bryophyllum pinnatum* (Lam.) Oken<br>Family: Crassulaceae<br>Common name: Pasan veda<br>Habit: Herb<br>Parts used: Whole plant, Leaves,<br>Uses: Dysentery, cough, asthma, fever, constipation. |
| Sl. No. 55 | Scientific name: *Kalanchoe pinnata*. Lamm<br>Family: Crassulaceae<br>Common name: Patharkuchi<br>Habit: Herb<br>Parts used: Whole plant, Leaves,<br>Uses: Diuretic, wound healing, inflammatory activity. | Sl. No. 56 | Scientific name: *Azadirachta indica* A. Juss.<br>Family: Meliaceae<br>Common name: Neem<br>Habit: Herb<br>Parts used: Whole plant, Leaves,<br>Uses: Leucoderma, piles, wounds, all types of skin inflammation. |
| Sl. No. 57 | Scientific name: *Nyctanthus arbortristis* Linn.<br>Family: Oleaceae<br>Common name: Sheuli<br>Habit: Herb<br>Parts used: Whole plant, Leaves<br>Uses: Dry cough, Sciatica, arthritis, Dengue fever, ringworm. | Sl. No. 58 | Scientific name: *Termelia arjuna* (Roxb) Wight & Ara.<br>Family: Combretaceae<br>Common name: Arjun<br>Habit: Herb<br>Parts used: Whole plant, Leaves<br>Uses: Hypolipiderma, reduced cholesterol level, cardiac stimulant. |

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| Sl. No. 59 | Scientific name: *Ocimum sanctum* L.<br>Family: Lamiaceae<br>Common name: Tulshi<br>Habit: Herb<br>Parts used: Whole plant, Leaves<br>Uses: Common cold & antiseptic. | Sl. No. 60 | Scientific name: *Crotalaria juncea* L.<br>Family: Fabaceae<br>Common name: Atashi<br>Habit: Herb<br>Parts used: Whole plant, Leaves<br>Uses:-To treat urinary problems, Eczema, and skin problem. |
| Sl. No. 61 | Scientific name: *Swietentia mahagoni* (L) Jacq<br>Family: Meliaceae<br>Common name: Mehogani<br>Habit: Tree<br>Parts used: Bark, Leaves and seed<br>Uses: Cure colon cancer, boost immunity, reduce cholesterol level. | Sl. No. 62 | Scientific name: *Mentha arvenensis* Linn.<br>Family: Lamiaceae<br>Common name: Pudina<br>Habit: Herb<br>Parts used: Whole plant, Leaves<br>Uses: Antiseptic, diuretic digestive |
| Sl. No. 63 | Scientific name: *Duranta erecta* L.<br>Family: Verbenaceae<br>Common name: Duranta<br>Habit: Small Shrub<br>Parts used: Leaves<br>Uses: Mosquito repellant, used to treat jaundice | Sl. No. 64 | Scientific name: *Ziziphus jujube* Mill.<br>Family: Rhamnaceae<br>Common name: Kul<br>Habit: Tree<br>Parts used: Fruit<br>Uses: Used for treating fever, and wound ulcers, leaves used for anti-helminths, stress and reduce constipation. |
| Sl. No. 65 | Scientific name: *Emblica officinalis* L.<br>Family: Euphorbiaceae<br>Common name: Amlaki<br>Habit: Herb<br>Parts used: Whole plant, Leaves<br>Uses: Antioxidant | Sl. No. 66 | Scientific name: *Mimusops enlengi* L.<br>Family: Sapotaceae<br>Common name: Bakul<br>Habit: Herb<br>Parts used: Whole plant, Leaves<br>Uses: Prevent bleeding of gum, used to treat<br>dental carries, pyorrhea. |
| Sl. No. 67 | Scientific name: *Aerva aspera* L.<br>Family: Amaranthaceae<br>Common name: Apang<br>Habit: Herb<br>Parts used: Whole plant and seed<br>Uses: Used for treatment of depression, anxiety and hydrophobia. | Sl. No. 68 | Scientific name: *Crenum asiaticum* L.<br>Family: Amaryllidaceae<br>Common name: Sukha darshan<br>Habit: Herb<br>Parts used: Leaves<br>Uses: Leaves are used in carbuncle, cancer, and wound. |
| Sl. No. 69 | Scientific name: *Aloe berberadensis* Mill.<br>Family: Liliaceae<br>Common name: Ghrita kumari<br>Habit: Herb<br>Parts used: Leaves<br>Uses: Joint pain, skin disease, liver problem. | Sl. No. 70 | Scientific name: *Rauvolfia serpentine* (wall.) Benth. ex. Hook. f.<br>Family: Apocynaceae<br>Common name: Sarphagandha<br>Habit: Herb<br>Parts used: Roots and seeds<br>Uses: Hypertension, reduce high blood pressure. |
| Sl. No. 71 | Scientific name: *Gomphrena globosa*<br>Family: Amaranthaceae<br>Common name: Botam phul | Sl. No. 72 | Scientific name: *Euphorbia ayapana* Vent.<br>Family: Euphorbiaceae |

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| | Habit: Herb<br>Parts used: Leaves<br>Uses: Cough, diabetes, oliguria (child) | | Common name: Ayapon<br>Habit: Herb<br>Parts used: Leaves<br>Uses: Leaves used in antiseptic, haemorrhage, foul ulcer, stomachache, anti-bacterial and anti fungal. |
| Sl. No. 73 | Scientific name: *Amaranthus spinosus* L.<br>Family: Amaranthaceae<br>Common name: Kata Notey<br>Habit: Herb<br>Parts used: Whole plant<br>Uses: Whole plant as laxative, diuretic, stomachic, anti-pyretic, improve appetite, hallucination, bronchitis, Leucorrhoea | Sl. No. 74 | Scientific name: *Andrographis paniculata* (Brum. f.) Wall. ex. Nees<br>Family: Acanthaceae<br>Common name: Kal Megh<br>Habit: Herb<br>Parts used: Whole plant<br>Uses: Whole plant used in fever, dyspepsia, scabies, leprosy, whooping cough, liver disorder, and loss of appetite. |
| Sl. No. 75 | Scientific name: *Amaranthus viridis* L.<br>Family: Amaranthaceae<br>Common name: Bon Notey<br>Habit: Herb<br>Parts used: Whole plant<br>Uses: Whole plant used in stomachic, diuretic, colic pain, piles, gonorrhea, Root- stop bleeding from cut wounds. | Sl. No. 76 | Scientific name: *Cassia tora* L.<br>Family: Caselpinaceae<br>Common name: Chakwar<br>Habit: Herb<br>Parts used: Seed and Leaves<br>Uses: Leaves used in dysentery and skin disease. |
| Sl. No. 77 | Scientific name: *Carrica papya*<br>Family: Caricaceae<br>Common name: Pepe<br>Habit: Small tree<br>Parts used: Fruit and Milky juice, and leaves<br>Uses: Milky fruit juice used to remove blemishes, anti-helminthes, diuretic, constipation, glandular tumor, eczema. | Sl. No. 78 | Scientific name: *Curcuma longa* L.<br>Family: Zingiberaceae<br>Common name: Halud<br>Habit: Herb<br>Parts used: Rhizome<br>Uses: Anti-oxidant, anti-inflammatory, anti-microbial and have healing properties |
| Sl. No. 79 | Scientific name: *Paederia foetida* L.<br>Family: Rubiaceae<br>Common name: Gadal<br>Habit: Climber, Herb<br>Parts used: Whole plant<br>Uses: Rheumatism, Leaves- applied to urinary infection, urinary bladder stone, flatulence, diarrhoea and dysentery, Fruit- toothache, Root- piles and liver inflammation. | Sl. No. 80 | Scientific name: *Tridax procumbens*.<br>Family: Asteraceae<br>Common name: Tridakha<br>Habit: Herb<br>Parts used: Whole plant<br>Uses: Wound healing, anti-coagulant, anti-fungal and insect repellent, infectious skin disease, liver disorder, gastritis, heart burn. |
| Sl. No. 81 | Scientific name: *Pouzolzia indica*.<br>Family: Uitriaceae<br>Common name: Tuici<br>Habit: Herb<br>Parts used: Leaves and root<br>Uses: Leaves used in gangrenous ulcers, | Sl. No. 82 | Scientific name: *Commelina benghalensis*.<br>Family: Comelinaceae<br>Common name: Kansira<br>Habit: Herb<br>Parts used: Whole plant. |

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| | syphilis, and gonorrhea. | | Uses: Leprosy, infertility in women, sore throat and burns, diarrhoea. |
| Sl. No. 83 | Scientific name: *Agaratum conyzoids*<br>Family: Asteraceae<br>Common name: Uchunti<br>Habit: Herb<br>Parts used: Whole plant<br>Uses: (i) Whole plant: The whole plant is anti-inflammatory and anti-allergic. The plant's juice is used for healing wounds, cuts, etc.<br>(ii) Leaves: The fume of dried leaves used as mosquito repellents. | Sl. No. 84 | Scientific name: *Sida cordifolia* Linn.<br>Family: Malvaceae<br>Common name: Bala<br>Habit: Erect perennial herb<br>Parts used: Roots, Leaves and bark<br>Uses: (i) Root juice: Healing the wounds<br>(ii) Leaves: Used in ophthalmia, the decoction of plants used in piles. It also used for respiratory troubles.<br>(iii) Barks: It is used as an astringent |
| Sl. No. 85 | Scientific name: *Sonchus arvensis* Linn.<br>Family: Asteraceae<br>Common name: Dudhi<br>Habit: Annual herb<br>Part Uses: Roots and leaves<br>Uses: Root-useful in jaundice and leaves - cooling, sedative, diuretic, useful in cough, bronchitis and asthma | Sl. No. 86 | Scientific name: *Piper longum L.*<br>Family: Piperaceae<br>Common name: pipul<br>Habit: Climber<br>Parts used: Seed and leaves<br>Uses: Commonly used in chronic bronchitis, asthma, constipation, gonorrhoea, paralysis of the tongue, diarrhea, cholera, malaria and respiratory trouble |
| Sl. No. 87 | Scientific name: *Ricinus communis* Linn.<br>Family: Euphorbiaceae<br>Common name: Varenda<br>Habit: Annual Shrubs<br>Parts Uses: Leaves and seed<br>Uses: Seed oil is purgative, and leaf paste is used as poultice on sore, gout, or rheumatic swelling. | Sl. No. 88 | Scientific name: *Phyllanthus niruri* Auct.<br>Family: Phyllanthaceae<br>Common name: Bhui amla<br>Habit: Annual Herbs<br>Part uses: Whole plant<br>Uses: Seed is used in jaundice, liver disease. The whole plant treats gonorrhea, menorrhagia and other genital disease. The leaves are used in stomachic, dysentery and ulcer. |
| Sl. No. 89 | Scientific name: *Oxalis corniculata* Linn.<br>Family:- Oxalidaceae<br>Common name: Amrul<br>Habit: Small perennial Herb<br>Parts Uses: Entire plant<br>Uses: Pant is used to treating scurvy, influenza fever, urinary tract infection, muscular swelling and in stomachic | Sl. No. 90 | Scientific name: *Heliotropium indicum* Linn.<br>Family: Boraginaceae<br>Common name: Hatisur<br>Habit: Erect annual herbs<br>Parts Uses: Leaves<br>Uses: Leaves - applied to boils, ulcers, wounds, and in stings of insect |
| Sl. No. 91 | Scientific name: *Ocimum basilicum* Linn.<br>Family: Lamiaceae<br>Common name: Babui tulsi<br>Habit: Branched scented herb<br>Part Uses: Whole plant<br>Uses: Root is used in bowel complaints of children, Seed-useful in dysentery, diarrhoea, Flower-diuretic, carminative | Sl. No. 92 | Scientific name: *Nicotiana plumbaginifolia* Viv.<br>Family: Solanaceae<br>Common name: Bon tamak<br>Habit: Annual Herbs<br>Parts Uses: Leaves<br>Uses: Sedative, emetic, antiseptic used in rheumatic pain and swelling, |

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| | and Leaves are used in respiratory trouble. | | and also in skin disease. |
| Sl. No. 93 | Scientific name: *Nerium olenader* Linn.<br>Family: Apocynaceae<br>Common name: Rakta karabi<br>Habit: Small tree<br>Parts Uses: Leaves and roots<br>Uses: Root bark is used in skin diseases of a scaly nature and leprosy. Leaf paste is used to reduce swelling. | Sl. No. 94 | Scientific name: *Cajanus cajan* (Lin) Mill<br>Family: Papilionaceae<br>Common name: Arahar<br>Habit: Shrub<br>Parts used: Leaves and seeds<br>Uses: Leaves are used in the treatment of cough, bronchitis, diarrhoea, sores, wounds and liver problem. Seed are used to treat mouth ulcers, tumors, and vomiting. |
| Sl. No. 95 | Scientific name: *Nymphaea stellata* Wild.<br>Family: Nymphaeaceae<br>Common name: Saluk<br>Parts used: Whole plants, seeds, flower<br>Uses: i) It has antiseptic and anti-microbial properties.<br>ii) It is used for the treatment of chronic diarrhoea.<br>iii) Seed: Seed is used for diabetes<br>iv) Flower: Flower cooling is used as an astringent for piles, liver disease | Sl. No. 96 | Scientific name: *Lawsonia inermis* Lin.<br>Family: Lythraceae<br>Common name: Mehendi<br>Habit: Shrub<br>Parts used: Leaves and Bark<br>Uses: Bark is useful in jaundice, enlargement of the spleen, and skin disease. Leaves externally used in headaches, promote hair growth and burning feet. |
| Sl. No. 97 | Scientific name: *Mimosa pudica* Linn.<br>Family: Mimosaceae<br>Common name: Lajjabati<br>Habit: Small prostrate diffuse herb<br>Parts used: Root and leaves<br>Uses: i) Root and leaves: Root and leaves are used in piles and fistula.<br>ii) Leaves: The pest of Leaves are applied to cure for hydrocele. | Sl. No. 98 | Scientific name: *Boerhaavia repens* L.<br>Family: Nyctaginaceae<br>Common name: Punarnava<br>Habit: Branched diffused herbs<br>Parts use: Whole plant<br>Uses: i) Whole plant is a diuretic, laxative, expectorant, useful in asthma, diarrhoea, dysentery, Oedema, anaemia, Jaundice, Cholera |
| Sl. No. 99 | Scientific name: *Euphorbia hirta* Linn.<br>Family: Euphorbiacea<br>Common name: Dudurli<br>Habit: Herb<br>Parts used: Whole plant<br>Uses: i) Plant is used in the disease of children worm, bowel complaints, cough, bronchial infection, asthma, dysentery etc. | Sl. No. 100 | Scientific name: *Acalypha indica* Linn.<br>Family: Euphorbiacea<br>Common name: Muktojhuri<br>Habit: Erect annual herbs<br>Parts used: Root, leaves<br>Uses: Root: Decoction of root is emetic, expectorant, and useful in pneumonia and asthma.<br>ii) Leaves: Laxative and also used in scabies. |
| Sl. No. 101 | Scientific name: *Croton bonplandianum* L.<br>Family: Euphorbiacea<br>Common name: Bontulsi<br>Habit: Erect much-branched herb | Sl. No. 102 | Scientific name: *Solanum nigram* Linn.<br>Family: Solanaceae<br>Common name: Kakamachi<br>Habit: Annual herb |

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| | Parts used: Root, bark, seed and leaf<br>Uses: Seed and bark are used for the treatment of jaundice, acute constipation<br>ii) Leaves are used for the treatment of ringworm, bronchitis, asthma and body swelling | | Parts used: Leaves, fruits<br>Uses: (i) Leaf is used to treatment for skin diseases like scabies, ringworm, swelling, and herpes disease.<br>(ii) Leaf juice used for the treatment of rat bites.<br>(iii) Leaves, fruits: Leaf and fruit used in asthma. |
| Sl. No. 103 | Scientific name: *Physalis minima*<br>Family: Solanaceae<br>Common name: Bantepari or patka<br>Habit: Small annual Herb<br>Parts used: Fruit and leaf<br>Uses: leaves used for treatment of diabetes, jaundice, leprosy, measles, worm manifestation<br>ii) Fruit used as diuretic and purgative | Sl. No. 104 | Scientific name: *Vernonia cinerea* Linn.<br>Family: Asteraceae<br>Common name: Kukasim<br>Habit: Perennial herb<br>Parts used: Entire plant<br>Uses: the paste of the leaves and stem is used for the treatment of wounds and localize swelling, elephantiasis disease, skin disease<br>Root and leaves are also used in constipation. |
| Sl. No. 105 | Scientific name: *Eclipta alba*<br>Family: Asteraceae<br>Common name: Keshuth<br>Habit: Herb<br>Parts used: Leaves and root.<br>Uses: Root-emeti, purgative, applied externally as antiseptic to ulcers and wounds. Leaves are useful to jaundice and also promote the hair growth. | Sl. No. 106 | Scientific name: *Scoparia dulcis*<br>Family: Plantaginaceae<br>Common name: Bon dhone<br>Habit: Small Herb<br>Parts used: Leaves<br>Uses: Traditionally used in diabetes, dysentery, headache, toothache, earache stomach problems. |
| Sl. No. 107 | Scientific name: *Cassia occidentalis* L.<br>Family: Caesalpiniaceae<br>Common name: Chakor<br>Habit: Small shrub<br>Parts used: Whole plants<br>Uses: Plant- purgative, diuretic, febrifuge, tonic and used fully in skin disease | Sl. No. 108 | Scientific name: *Cassia alata* L.<br>Family: Caesalpiniaceae<br>Common name: Dadmari<br>Habit: Shrub<br>Parts used: Leaves,<br>Uses: i) Leaves: The leaves are used as asthma, diuretic, purgative, ringworm and other skin diseases. |
| Sl. No. 109 | Scientific name: *Cyperous rotundus* L.<br>Family: Cyperaceae<br>Common name: Muthaghas<br>Habit: Herb<br>Parts used: Herb, Rhizome/<br>Uses: 2-3 teaspoons of rhizome extract or paste of (5 rhizomes) are used to treat for eliminating female infertility and irregular menstrual cycle 21 days after every menstrual cycle. | Sl. No. 110 | Scientific name: *Cassia alata* (L.) Roxb.<br>Family: Fabaceae<br>Common name: Dadmari<br>Habit: Shurb<br>Parts used: Leaves<br>Uses: Scabies, eczema, candidacies and fungal disease |

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| Sl. No. 111 | Scientific name: *Euphorbia meriifolia*<br>Family: Euphorbiaceae<br>Common name: Manasa Gach<br>Habit: Shrub,<br>Parts used: old Leaves<br>Uses: Dry cough, chest pain, broken bone pain. | Sl. No. 112 | Scientific name: *Barleria lupulina* Lindl.<br>Family: Acanthaceae<br>Common name: Kata Bishalya Karani<br>Habit: Shrub<br>Parts used: Leaves<br>Uses: Eczema, stop bleeding from cuts and wounds and accelerate their recovery. |
| Sl. No. 113 | Scientific name: *Stephania japonica* (Thumb) Miers<br>Family: Meninspermaceae<br>Common name: Nemuwa<br>Habit: Climber,<br>Parts used: Stem, Leaves<br>Uses: Rheumatic pain, arthritis, broken bone pain, joint pain | Sl. No. 114 | Scientific name: *Jatropha gossypifolia* Linn.<br>Family: Euphorbiaceae<br>Common name: Lal Vanda<br>Habit: Shrub<br>Parts used: Exudates<br>Uses: Dysentery, skin diseases, rheumatism |

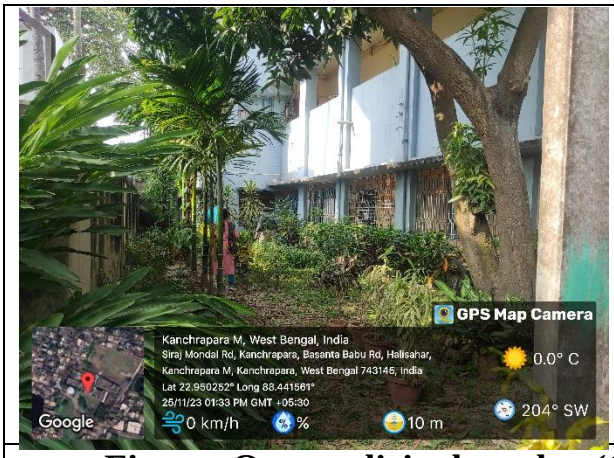

**Figure: Our medicinal garden (114 numbers of medicinal plants)**

**Title of the R&D Project:**
Development of a wild varieties medicinal plants garden and its management for conservation of Semi Urban development
**PI:** Mrs. Bhanumati Sarkar, Assistant Professor of Botany
**Total approved Budget:** RS. 680000/-
**First Sanctioned G. O. No.:** 254(sanc)-ST/P/S&T/1G-30/2018 Dated 25/2/2019
**Area:** Medicinal garden at college premises which coved about 7520 sq.ft +1320 sq.ft = Total 8840 sq. ft.

**List of Floral groups:**

| Sl | Scientific name | Common name | Family | No. of plant |
|---|---|---|---|---|

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|---|---|---|---|---|
| 1 | *Peltophorum pterocarpum* (DC.) K.Heyne | Radhachura | Fabaceae | 1 |
| 2 | *Casuarina equisetifolia* L. | Jhau | Casuarinaceae | 3 |
| 3 | *Lagerstroemia speciosa* (L.) Pers. | Jarul | Lythraceae | 2 |
| 4 | *Samanea saman* (Jacq.) Merr. | Shirish | Fabaceae | 2 |
| 5 | *Swietenia mahagoni* (L.) Jacq. | Mehagoni | Meliaceae | 3 |
| 6 | *Bauhinia purpurea* L. | Rakta Kanchan | Fabaceae | 2 |
| 7 | *Alstonia scholaris* L.R.Br. | Chhatim | Apocynaceae | 1 |
| 8 | *Polyalthia lingifolia* (Sonn.) Thwaites | Debdaru | Annonaceae | 7 |
| 9 | *Tectona grandis* L.f. | Segun | Verbanaceae | 1 |
| 10 | *Areca catechu* L. | Supari | Arecaceae | 4 |
| 11 | *Terminalia arjuna* (Roxb)Wight& Arn | Arjun | Combretaceae | 6 |
| 12 | *Acacia auriculiformis* A.Cunn.ex.Benth | Sonajhuri | Fabaceae | 4 |
| 13 | *Ficus religiosa* L. | Ashwattha | Moraceae | 1 |
| 14 | *Psidium guajava* L. | Peyara | Myrtaceae | 7 |
| 15 | *Mangifera indica* L. | Aam | Anacardiaceae | 23 |
| 16 | *Syzygium cumini* (L.) Skeels | Jam | Myrtaceae | 2 |
| 17 | *Mimusops elengi* L. | Bakul | Sapotaceae | 2 |
| 18 | *Neolamarckia cadamba* (Roxb.) Bosser | Kadam | Rubiaceae | 2 |
| 19 | *Syzygium samarangense* (Blume) Merr. & L.M.Perry[ | Jamrul | Myrtaceae | 3 |
| 20 | *Carissa carandas* L. | Karamcha | Apocynaceae | 2 |
| 21 | *Citrus limetta* Risso | Lebu | Rutaceae | 5 |
| 22 | *Ziziphus mauritiana* Lam. | Kul | Rhamnaceae | 4 |
| 23 | *Tecoma stans* (L.) Juss. ex Kunth | Chandra prava | Bignoniaceae | 1 |
| 24 | *Nerium oleander* L. | Karabi | Apocynaceae | 1 |
| 25 | *Pterocarpus santalinus* Linn | Rakta Chandan | Fabaceae | 1 |
| 26 | *Terminalia chebula* Retz. | Haritaki | Combretaceae | 1 |
| 27 | *Hibiscus rosa-sinensis* | Joba | Malvaceae | 2 |
| 28 | *Thuja occidentalis* L | Jhau | Cupressaceae | 209 |
| 29 | *Roystonea regia* | Palm | Arecaceae | 46 |
| 30 | *Euphorbia milii* Des Moul. | Kata mukut | Euphorbiaceae | 11 |
| 31 | *Azadirachta indica* A.Juss. | Neem | Meliaceae | 2 |
| 32 | *Phyllanthus emblica* L. | Amlaki | Phyllanthaceae | 4 |
| 33 | Carica papaya L. | Pepe | Caricaceae | 3 |
| 34 | *Averrhoa carambola* L. | Kamranga | Oxalidaceae | 1 |
| 35 | *Punica granatum* L. | Dalim | Lythraceae | 2 |

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|---|---|---|---|---|
| 36 | *Artocarpus heterophyllus* Lam. | Kathal | Moraceae | 1 |
| 37 | *Khaya anthotheca* (Welw.) C.DC. | Lambu | Meliaceae | 13 |

**7. Conclusion:** According to the findings of a recent green audit, the Kachrapara College has identified a few locations on campus that can benefit from some additional work in order to advance its sustainability goals. The application of the proposed solutions has the potential to result in a number of beneficial consequences for the environment, such as a reduction in energy consumption, an improvement in waste management, an increase in the efficiency with which water is used, an expansion of sustainable transportation options, and a heightened environmental consciousness. By putting these changes into effect, Kachrapara College will be able to show its students how to appropriately care for the environment and contribute towards a more sustainable future. In addition, the college will be able to better prepare its students for the world of the future.

# Green Audit Report (2019-20)


Kanchrapara, North 24 Parganas, PIN- 743145

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Email: info@kpcoll.ac.in

**Certificated ISO based**

## Contents:

## 1. Introduction:

The Kachrapara College's Green Audit Report attempts to evaluate the institution's environmental effect, sustainability practices, and potential for development. We have assessed numerous facets of the college's operations, including energy use, waste management, water use, transportation, and general environmental awareness, by conducting an in-depth review. The conclusions and suggestions in this report are meant to strengthen the college's dedication to sustainable practices and environmental responsibility.

## Green Audit Working Team (2019-20):

| Sl No | Name of the Members | Designation |
|---|---|---|
| 1 | Dr. Pranab Kumar Bera | Principal |
| 2 | Dr. Subhro Ghoshal | IQAC Coordinator |
| 3 | Dr. Subhabrata De | Evening -In-Charge |
| 4 | Sandip Mallick | Bursar |
| 5 | Dr. Bimalendu Ghosh, | GB Member |
| 6 | Dr. Biswajit Kar, Department of environmental science | Member |
| 7 | Dr. Piyal Bhattacharya, Department of environmental science | Member |
| 8 | Ashoke Ghosal, Head Clerk | Member |
| 9 | Gopal Majumder, Accountant, | Member |

| Sl No | Name of the Members and Designation | Signatures with Stamp |
|---|---|---|
| 1 | Dr. Pranab Kumar Bera, Principal | P. K. Bera<br>Principal<br>Kanchrapara College<br>Kanchrapara, 24 Pgs (N) |
| 2 | Dr. Pradip Kumar Biswas, IQAC Coordinator | Co-Ordinator<br>IQAC<br>Kanchrapara College<br>Kanchrapara, 24 Pgs (N) |
| 3. | Mr. Amalesh Kumar Mandal, Lead Auditor,Management System Consultancy | Amalesh Kr. Mandal |
| 3 | Dr. Subhabrata De, Evening Incharge | Associate Professor<br>Kanchrapara College<br>P.O.-Kanchrapara, Dist.-24 Pgs.(N) |

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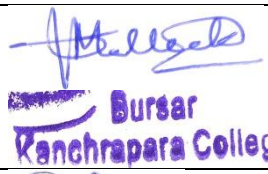
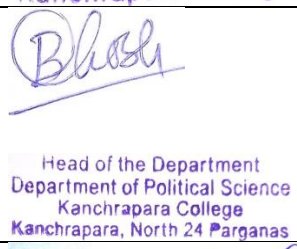
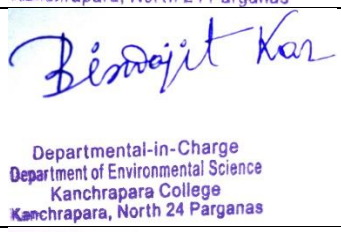
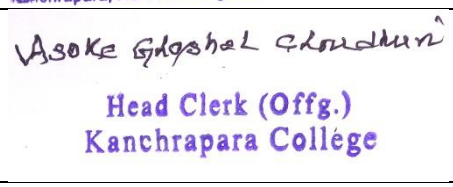
|---|---|---|
| 4 | Sandip Mallick, Bursar |  |
| 5 | Dr. Bimalendu Ghosh, GB Member |  |
| 6 | Dr. Biswajit Kar, Head, Department of Environmental Science, Member |  |
| 8 | Ashoke Ghosal, Head Clerk, Member |  |

## 2. The Necessity of a Green Audit:

The need for green audits, also known as environmental audits or sustainability audits, is rising in today's society for a number of reasons.

**(a) Effects on the Environment:** Green audits help to assess and lessen an organization's harmful environmental impact. They analyse factors such as energy consumption, trash generation, water use, and emissions to find areas that could be improved to decrease environmental harm.

**(b) Conformity with Regulations:** The environmental regulations and rules that have been established in many countries must be followed by businesses. Green audits help companies adhere to standards so they can avoid penalties or other legal implications for non-compliance.

**(c) Savings on Expenses:** Green audits can identify inefficient practises and inefficiencies within a business, providing opportunities for cost savings. By studying energy use, resource consumption, and waste management, businesses can put strategies into practise to reduce operational costs and increase overall efficiency.

**(d) Reputation and the Expectations of Stakeholders:** Customers and other stakeholders now call organisations to adopt more environmentally friendly practises. Green audits promote trust among customers, employees, investors,

and communities by demonstrating an organization's transparency and commitment to sustainability.

**(e) Risk Management:** Environmental hazards can have serious financial and reputational ramifications for firms, including pollution events, regulatory non-compliance, and supply chain interruptions. By evaluating environmental management systems, ensuring sufficient controls are in place, and putting preventative measures in place to deal with possible problems, green audits assist in identifying and mitigating these risks.

**(f) Continuous Improvement:** Green audits encourage a continuing commitment to sustainability rather than being one-time events. Organizations can see trends, set goals, and implement improvement initiatives by routinely evaluating and tracking environmental performance. This iterative process promotes a culture of sustainability and propels long-lasting transformation.

**(g) Sustainable Development Goals (SDGs):** An international framework for solving urgent environmental and social issues is provided by the Sustainable Development Goals. Organizations can better align their operations with these objectives with the aid of green audits, paving the way for a more just and sustainable future. Green audits are essential to evaluate, enhance, and confirm environmental performance. They allow companies to control risks, comply with rules, cut costs, improve reputations, and support sustainable development.

## 3. Methodology for Green Audit:

Audits of an organization's environmental performance and practices are known as "green," "environmental," or "sustainability" audits. They entail assessing the company's influence on the environment, resource usage, waste management, and adherence to environmental legislation. Here is a procedure for carrying out a green audit:

(a) Planning:

(b) Identify audit team and resources:

(c) Develop an audit plan: Create a detailed plan outlining audit activities, timelines, responsibilities, and communication channels.

(d) Data Collection:

(e) Gather information:

(f) Conduct site visits and interviews:

(g) Review documentation:

(h) Evaluation and Analysis:

(i) Assess environmental impacts:

(j) Evaluate compliance:
(k) Identify strengths and weaknesses:
(l) Quantify results:
(m) Reporting:
(n) Prepare an audit report:
(o) Communicate results:
(p) Follow-up and Improvement:
(q) Develop an action plan:
(r) Monitor progress:
(s) Continuous improvement:

The methodology adopted to conduct the Green Audit of the Institution had the following components.

**3.1. On-site Visit :**

The Green Audit Team carried out the five-day field trip. The tour's main goal was to evaluate the Institution's waste management procedures, energy conservation tactics, and other aspects of its green cover. The protocols for sample collection, preservation, and analysis were followed scientifically.

**3.2. Focus Group Discussion :**

The nature club, staff, and management members participated in focus group discussions on various facets of the green audit. Identification of attitudes and awareness towards environmental issues at the institutional and local levels was the main topic of discussion.

**3.3. Energy and waste management Survey:**

The audit team evaluated the college's waste generation, disposal, and treatment facilities as well as its energy usage pattern with the assistance of teachers and students. A comprehensive questionnaire survey method was used to carry out the monitoring.

## 4. Target Areas of Green Auditing:

An environmental audit is one of the steps involved in the process of resource management. Green audits are useful despite the fact that they are one-off

occurrences. This is due to the fact that they are carried out on a regular basis, and the results of the audits might shift or get better over time. The concept of an eco-campus centers primarily on making effective use of water and energy while simultaneously reducing pollution and the amount of trash produced.

Several indicators will be evaluated during the "Green Auditing of this Educational Institute" procedure. Eco-campus focuses on these goals in order to reduce emissions, obtain a reliable and affordable energy supply, encourage and improve energy conservation, decrease the institute's energy and water use, reduce the amount of waste that is sent to landfills, and incorporate environmental considerations into all contracts and services that are thought to have significant environmental impacts. Eco-campus also focuses on these goals in order to improve the quality of life on campus. The water, the electricity, the rubbish, and the green campuses are the key focuses of this environmental audit.

**4.1. Energy Consumption:**

**4.1.1. Lighting:** According to the findings of the audit, a significant number of the college's lighting fixtures are both inefficient and out of date. It is recommended to make advantage of natural light whenever it is feasible, to install occupancy sensors, and to replace traditional light bulbs with LED light bulbs that are more energy efficient.

**4.1.2. Heating, Ventilation, and Air Conditioning (HVAC):**

It was found that the HVAC systems were operating at a lower level of efficiency than was required. Switching to heating, ventilation, and air conditioning (HVAC) equipment that is more energy-efficient, installing thermostats that are programmable, and keeping up with normal maintenance can significantly cut energy consumption.

**4.1.3. Energy Awareness:** Both the faculty and the student body should be encouraged to engage in energy-saving behaviours by the college. Campaigns, instructional activities, and financial incentives for projects that save energy are all potential ways to assist in accomplishing this goal.

**Details electrical requirements:**

| Electrical device/items | Number | Power (watt) | Usage time (hr/day) |
|---|---|---|---|
| Normal Tubelight | 610 | 24400 | 10:00 am to 5:00 pm |
| LED Tubelight | 130 | 3250 | Do |
| Normal Bulb | 30 | 1800 | Do |
| LED Bulb | 0 | 0 | Do |
| Ceiling Fan | 285 | 17100 | Do |
| Wall fan | 40 | 2400 | Do |


**Normal tube light**

**Silent DG sets are designed to generate a very low level of background noise, just as their name suggests. Their structures are constructed to eliminate virtually all noise and vibrations due to careful design. Because of this, they are not harmful to the environment and are ideally suited for use in residential areas.**

## 4.2. Waste Management:

**4.2.1. Recycling:** Despite the fact that recycling canisters were located all around the campus, the audit indicated that there was insufficient separation of recyclable materials and inadequate information regarding products that might be recycled. This was the case despite the fact that recycling canisters were located everywhere. An increase in the percentage of materials that are recycled can be accomplished in a number of different ways; some of these ways include making the signs clearer, providing instructions that are free of ambiguity, and carrying out an intensive recycling education programme.

**4.2.2. Composting:** At the organisation, composting facilities can be established so that the organic waste that is produced by the residents of the

hostel (both boys and girls) can be disposed of in an appropriate manner. Composting not only produces useful compost that can be utilised for campus landscaping and gardening, but it also contributes greatly to a reduction in the amount of waste that is dumped in landfills. This is one of the many benefits of composting.

**Table: Different types of waste generated in the college and their disposal**

| Types of waste | Particulars | Disposal method |
|---|---|---|
| E-Waste | Computers, electrical and electronic parts | Store these in a separate tank, and we can start selling them directly after a certain amount of time. |
| Plastic waste | Pen, Refill, Plastic water bottles and other plastic containers, wrappers etc | Items made of plastic that are only intended to be used once, such as bottles, jars, and bags. Encourage people to use water bottles and other containers that may be reused. Establish distinct recycling containers for plastic garbage, and after a predetermined period of time, we will be able to begin selling the collected recyclables directly. |
| Solid wastes | Paper waste, Damaged furniture, paper plates, food wastes | Reuse after maintenance energy conversion. Installing composting systems on a college campus will allow for the conversion of discarded food into nutrient-dense compost that may be used in the campus landscaping or in community gardens. Another option is for institutions to form |

| | | |
|---|---|---|
| | | partnerships with farmers in the surrounding area to collect food waste. |
| Chemical wastes | Laboratory waste | Water should be used to neutralise. When dealing with hazardous garbage, adhere strictly to all safety regulations. |
| Wastewater | Washing, urinals, bathrooms | Soak pits |
| Glass waste | Broken glass wares from the labs | Glass debris should be kept separate from other recyclable materials and disposed of in containers that are specifically intended for glass recycling. Make sure that you recycle glass in the correct manner by coordinating with the local recycling centers. |
| Sanitary Napkin | - | Napkin Incinerators |

## 4.3. Water Usage:

**4.3.1. Water Fixtures:** Numerous locations within the college had outdated and ineffective water fixtures, which caused excessive water use. Water resources can be saved by swapping these fixtures for low-flow models and encouraging staff and students to practice water-saving habits.

### Water management table:

| Water Management Tasks | Frequency | Responsible Party |
|---|---|---|
| Routine examination of water supplies | Monthly | Green Audit Working Team |
| Testing for drinking water quality | Half-yearly | Do |
| Awareness of water conservation | Half-yearly | Green Audit Working Team & various department |
| Infrastructure for water | As needed | Caretaker |

| | | |
|---|---|---|
| distribution that needs upkeep and repair | | |
| Reporting and analysis of water use | Annually | Green Audit Working Team & Caretaker |
| Learn what causes excessive water consumption. | As needed | Caretaker |

## Tabular data detailing the subject at hand:

| Sl No | Parameters | Response |
|---|---|---|
| **1** | Source of water | Municipality, Underground, Pond (1500 sqft) & Rain Harvesting Water<br>**Note:** The ground's water serves as a drinking water supply for around 4,500 people, including students and staff members. |
| **2** | Source of Drinking Water | Ground's water |
| **3** | Any treatment for drinking water | Nil, 16 numbers water purifier<br>**Note:** Water purifiers have been installed in 1-2 numbers on each floor and are maintained for 3–4 months afterward. |
| **4** | What is the total number of motors that are used? | 02 numbers |
| **5** | What is the total number of water tanks? Capacity of tank | 10 numbers@ 1000 liters each |
| **6** | Tap water | 170 numbers |
| | Quantity of water pumped every day | 12000 liters/per day |
| **7** | Do you waste water, and if so, why? | No |
| **8** | How much water is required for gardening purposes? | 500 liters/per day |
| **9** | How many water coolers are there in total? | 02 |
| **10** | Do you have access to | Yes |

| | | |
|---|---|---|
| | rainwater harvesting? | |
| **11** | The number of units harvested and the total volume of water | 01 number, We have constructed a water canal to connect a college pond that is 1500 square feet and 5,000 liters of tanks to store rainwater. |
| **12** | Any leaky taps | None |
| **13** | Daily amount of water that is lost. | Not applicable |
| **14** | Is there any kind of plan for the management of water? | Raise public awareness regarding the importance of water conservation, the prevention of pollution, and the implementation of sustainable water management practices. Unambiguous water rights and equitable water allocation regulations should be established to ensure that water is distributed fairly among the many different users. |
| **15** | Have any methods for conserving water been implemented? | Rainwater Harvesting |

**4.4.1. Public Transport:** Cycle, van, Rikhsha, Train, bus etc.

**4.5. Overall Environmental Awareness:**

**4.5.1. Curriculum Integration:** The institution can incorporate environmental consciousness and sustainable practices into its curriculum in a variety of topic areas. Students will be provided with teaching and training in environmental stewardship thanks to this technique, which will also encourage them to think in a sustainable manner.

**Environmental awareness:**

| Environmental awareness across different subjects | Parameters | Program time |
|---|---|---|
| Language Arts | Discuss texts from literature that are in some way connected to topics concerning the environment, such as conservation or environmental | Whole year |

| | | |
|---|---|---|
| | advocacy. Compose poetry or essays that argue for the protection of the environment and use persuasion. Conduct research on a variety of environmental topics, then present your findings. Through various awareness programs, they understand the environmental laws and regulations that apply on the local, national, and international levels. Discuss the roles that governments, NGOs, and people play in the effort to solve environmental problems. Investigate the environmental concerns from both a historical and cultural point of view. | |
| Arts | Investigate the causes of climate change and possible solutions to the problem. Analyse the impact that human activities have had on different landscapes as well as the distribution of natural resources. Studies should be done on urbanization, logging, and industry's impact on the natural environment. Investigate geographical approaches to resolving environmental issues, such as environmentally responsible land management planning. | Whole year |
| Pure Science | Conduct studies on environmental issues, such as assessing water quality, soil analysis, power consumption or recycling. To better comprehend environmental patterns and forecasts, consider using mathematical models. Investigate the repercussions of environmental actions on the economy, such as doing cost-benefit analyses for environmentally friendly projects. | Half-yearly/ each program |
| Bio-Science | Study subjects include ecosystems, biodiversity, and the interconnectedness of all living things. | Whole year |
| Physical Education | Encourage students to develop an appreciation for the natural world by having them participate in outdoor | Whole year |

| | | |
|---|---|---|
| | sports and activities. Talk about the significance of physical activity for both one's own health and the health of the environment (for example, taking bike instead of the car). | |
| NSS | To enhance the amount of green cover and fight deforestation, organizing tree-planting events in local communities and educational institutions is important. To combat littering and to encourage a clean environment, it is important to organize routine clean-up efforts in public places like parks and beaches. To educate both students and members of the general public about environmental issues such as climate change, waste management, renewable energy, and conservation, workshops and seminars should be organized. It should be a priority to create opportunities for individuals to engage with the natural world and develop a sense of ownership over its preservation through participating in hikes and other outdoor activities. To raise awareness about environmental issues and motivate people to take action, you might use social media, posters, and booklets. | Whole year |



**Plantation Programmes & Organized Seminar**

**4.5.2. Student Engagement:** A culture of sustainability can be promoted among students by supporting student-led projects, creating environmental groups, and holding awareness events and workshops.

## 5. Green Campus:

### 5.1. Floral Diversity:

The following are some actions to take into account when setting up a plantation programme at your college:

-Organise a group of academics, employees, and students who are interested in managing the plantation programme. Assign roles and duties to make the execution go smoothly.

-Consult with local forestry professionals or environmental groups to discover native or adapted tree species that are well-suited to the climate, soil, and goal of the plantation programme. Research and choose suitable tree species.

-To obtain the necessary approvals or permits for planting trees on campus or in the neighborhood, check with the college administration or other appropriate authorities.

- Look into possible funding options, including grants, sponsorships, or collaborations with nearby companies or environmental organizations. This will aid in defraying the price of buying trees, equipment, and other required supplies.

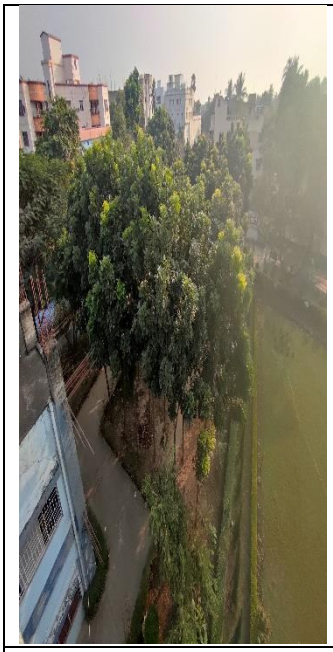
- Establish the plantation event's date, time, and venue. Plan the delivery of the trees, tools, and equipment to the planting location. Make sure that safety precautions are in place, including appropriate instruction on planting methods and equipment use.

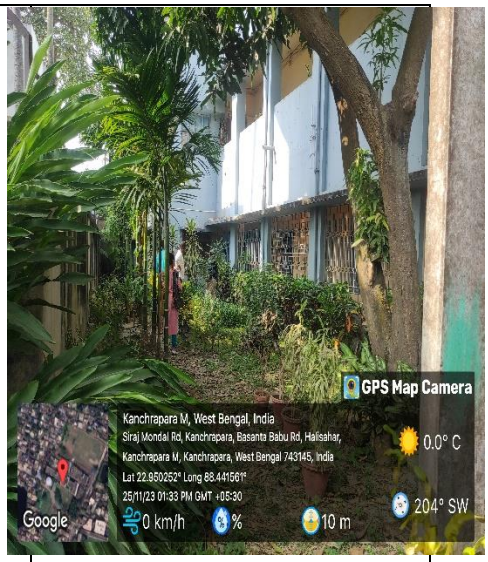
-Promote the planting programme within the campus community by using various communication channels, such as posters, social media, emails, and word-of-mouth, in order to raise awareness and find volunteers. Encourage everyone to volunteer, including alumni, faculty, staff, and students.

-Volunteers should be gathered at the planting site on the appointed planting day. Give them the equipment, instructions, and direction they need to plant trees correctly. Foster a sense of accomplishment and community pride while fostering teamwork.

-Stress the significance of taking care of the freshly planted trees. This could entail routine weeding, mulching, watering, and pest or disease inspection. To guarantee the long-term well-being and survival of the trees, think about setting up a system for volunteers or staff members.

-After the plantation programme, evaluate the impact and accomplishment of the effort. Keep an eye on the trees' growth and survival rate. To determine areas for improvement and to organize upcoming plantation programmes, collect participant and stakeholder input.






**Floral Diversity of the Campus**

To encourage participation in the upkeep and preservation of the grassland, the institution's students, instructors, and staff should be encouraged to do so. Volunteer initiatives, instructional workshops, and awareness campaigns are all effective ways for reaching this objective. On grasslands, it is possible for many different kinds of plants and animals to flourish. By providing a home for a wide variety of plant and animal species and so making a contribution to the preservation of ecological equilibrium, a grassland promotes a higher level of biodiversity on a campus. Grasslands have the ability to collect carbon dioxide from the air and store it in their soil, which helps in the fight against climate change by lowering overall levels of greenhouse gases.

**Fig. College ground field.**

The ability of the campus to maintain a healthy ecological balance is greatly dependent on the presence of ponds. They contribute to the recharging of groundwater supplies, help to limit the amount of erosion that occurs in the surrounding area, and support the ecology of the area by providing a habitat for a diverse array of flora and fauna.

**5.2. Faunal Diversity:**

Studying faunal diversity can increase awareness about environmental challenges and conservation's significance. Colleges that are home to a wide variety of animal species may be more likely to adopt environmentally friendly policies and methods of operation to safeguard the campus environment and the people who live there.

**Birds Diversity:**

A population of birds that is rich in variety is indicative of an ecosystem that is robust and thriving. Seed dispersal, the control of insect populations, and pollination are just a few of the many important functions that different species of birds perform to help maintain ecological equilibrium. They provide a contribution to the campus's general diversity of flora and fauna.

-Dove- *Streptopelia risoria*-Highest numbers in a day. Very common in the gardens

-Pigeon- *Columba livia*- Second highest numbers in a day. Very common on the college premises.

- The Indian Pond Heron (*Ardeola grayii*), is a species of heron that is very available

-Kingfisher (*Alcedo atthis*): Very common

- The Common Myna (*Acridotheres tristis*), is a species of bird that lives in college premises and is famous for its ability to imitate human speech as well as other sounds.

-Oriental Magpie Robin (*Copsychus saularis*) – Very available at our college campus

-House Sparrow (*Passer domesticus*) – Very common

- Rose-ringed Parakeet (*Psittacula krameri*)- Rare

- Common Tailorbird (*Orthotomus sutorius*)-Very common

- Coppersmith Barbet (*Psilopogon haemacephalus*)-Very rare

**Butterfly:**

Seasonally found the following butterflyes-

Peacock Pansy (*Junonia almanac*), Plain Tiger (*Danaus chrysippus*), Common Albatrosses (*Appias albina*), Blue Mormon (*Papilio polymnestor*), Grey Pansy (*Junonia atlites*), Blue tiger (*Tirumala limniace*), Tailed Jay (*Graphium agamemnon*), Common Grass Yellow (*Eurema hecabe*), Common Mormon (*Papilio polytes*), Common Caster (*Ariadne merione*), Common Rose (*Pachliopta aristolochiae*), Palm Fly (*Elymnias hypermnestra*) and Common Crow (*Euploea core*).

## 6. Wild type Medicinal plants at mededicinal garden:

Two medicinal gardens were developed at our college premises. Many wild medicinal plant varieties were lost daily due to anthropogenic activities and pollution. After identifying these plants, we conserve these through propagation in our medicinal gardens. Any interested people or agencies can access it through the proper channel. Medicinal garden is a specific area inside the grounds of a college that is dedicated to the cultivation and upkeep of a wide range of different sorts of medicinal plants. As an educational and research resource, it makes it possible for students, faculty members, and researchers to investigate and gain knowledge on medicinal plants' varied qualities and applications. Culturing a medicinal garden on a college campus can confer major value and benefits to the surrounding academic community and society.

**Table: List of wild types of medicinal plants at the premises of Kachrapara College**

| | | | |
|---|---|---|---|
| Sl. No. 1 | Binomial name: *Syzygium aromaticum* (L) Merril & Perry<br>Family: Mytraceae<br>Common name: Labanga<br>Habit: Tree<br>Parts used: Dried flower bud, leaves<br>Medicinal use: Clove oil is used as a pain killer, for dental problems, used for the treatment of hernia, Stomach upset and as an expectorant. | Sl. No. 2 | Binomial name: *Barleria prionitis* L.<br>Family: Acanthaceae<br>Common name: Bazradanti<br>Habit: Herb<br>Parts used: Leaves<br>Medicinal use: Leaf juice is used to prevent tissue maceration, stop gum bleeding, and as an expectorant. |
| Sl. No. 3 | Binomial name: *Glycosmis pentaphyla* (Retz) Correa<br>Family: Rutaceae<br>Common name: Ash shaowra<br>Habit: Shrub<br>Parts used: Leaves and stem<br>Medicinal use: Leaves are used for fever, liver complaints, and stem for ulcer. | Sl. No. 4 | Binomial name: *Trema orcientalis* (L) Blume<br>Family: Cannabaceae<br>Common name: Jibanti<br>Habit: Tree<br>Parts used: Leaves and bark<br>Medicinal use: Leaves & bark are used for cough, sore throat, asthma, and yellow fever. |
| Sl. No. 5 | Binomial name: *Blumea lacera* ( Burm. F.) Dc.<br>Family: Asteraceae<br>Common name: Bara cooksina | Sl. No. 6 | Binomial name: *Clitoria ternatea* L.<br>Family: Fabaceae<br>Common name: Aporajita<br>Habit: Herb, Climber |

| | | | |
|---|---|---|---|
| | Habit: Herb<br>Parts used: Whole plant<br>Medicinal use: Leaves used for liver tonic, antipyretic, diuretic, ophthalmic. | | Parts used: Leaves<br>Medicinal use: Leaves are used as memory enhancer, antidepressant, sedative agent. |
| Sl. No. 7 | Binomial name: *Aegel marmelos* (L) correa<br>Family: Rutaceae<br>Common name: Bel<br>Habit: Tree<br>Parts used: Whole plant, Leaves, Fruit<br>Medicinal use: Fruit pulp is use for laxative, jaundice, constipation | Sl. No. 8 | Binomial name: *Elaeocarpus serratus* L.<br>Family: Elaeocarpaceae<br>Common name: Jalpai<br>Habit: Tree<br>Parts used: Leaves and Fruits<br>Medicinal use: Leaves used for rheumatism and antitode of poison and fruit for dysentery. |
| Sl. No. 9 | Binomial name :<br>*Pogostemon cablin* (Blanco) Benth<br>Family: Lamiaceae<br>Common name: Pachouri<br>Habit: Herb<br>Parts used: Leaves<br>Medicinal use: Used in insect repellants, and antidepressant. | Sl. No. 10 | Binomial name: *Cympogon citrus* (L.) Spreng<br>Family: Poaceae<br>Common name: Lebughash<br>Habit: Herb<br>Parts used: Leaves<br>Medicinal use: Pesticide, insecticide & antifungal and antibacterial and also used as insect repellent. |
| Sl. No. 11 | Binomial name: *Ocimum tenuiflorum* L.<br>Family: Lamiaceae<br>Common name: Krishna Tulsi<br>Habit: Herb<br>Parts used: Whole plant.<br>Medicinal use: Reduce chest congestion, germicide and tuberculosis. | Sl. No. 12 | Binomial name: *Stephania japonica* (Thumb). Micrs<br>Family: Menispermaceae<br>Common name: Nimukha<br>Habit : Climber, Herb<br>Parts used: Whole plant and Leaves.<br>Medicinal use: Leaves are used in fever, diarrhoea, dyspepsia. Root is used to treat fever, diarrhoea and urinary disease. |
| Sl. No. 13 | Binomial name: *Mikania scandense* B. L. Rob.<br>Family: Asteraceae<br>Common name: Jarman lata<br>Habit: Climbing Herb<br>Parts used: Leaves<br>Medicinal use: Gastric ulcer, wound insect bites stop bleeding from cut, It also has antimicrobial, antipyretic and anti-inflammatory properties. | Sl. No. 14 | Binomial name: *Aerva lantana* L.<br>Family: Amaranthaceae<br>Common name: Chaya<br>Habit: Herb<br>Parts used: Whole plant<br>Medicinal use: Antioxidant activity, stop abnormal bleeding in menstruation. |
| Sl. No. 15 | Binomial name: *Desmodium gangeticum* (L.) Dc.<br>Family: Fabaceae<br>Common name: Shalparni<br>Habit: Herb<br>Parts used: Leaves and roots<br>Medicinal use: Heart disease, rejuvenation, anti dysenteric | Sl. No. 16 | Binomial name: *Costus specious* (J. Koning.) C. Specht.<br>Family: Zingiberaceae<br>Common name: Keu<br>Habit: Herb<br>Parts used: Rhizome<br>Medicinal use: Anti-diabetic, to treat asthma, bronchitis and fever. |

| | | | |
|---|---|---|---|
| Sl. No. 17 | Binomial name: *Uraria picta* (Jack) Dc.<br>Family: Fabaceae<br>Common name: Prishiparni<br>Habit: Herb<br>Parts used: Whole plant, Leaves,<br>Medicinal use: Hear trouble, fractured bone, cough. | Sl. No. 18 | Binomial name: *Iresine herbstii* Hook. ex Lindl.<br>Family: Amaranthaceae<br>Common name: Lal vishyalikarani<br>Habit: Herb<br>Parts used: Leaves<br>Medicinal use: Healing property. |
| Sl. No. 19 | Binomial name: *Ruellia prostrata* L.<br>Family: Acanthaceae<br>Common name: Patpati<br>Habit: Herb<br>Parts used: Whole plant, Leaves<br>Medicinal use: Anti-cancerous against the epidermis of naso-pharynx. | Sl. No. 20 | Binomial name: *Barringtonia acutangula* (L) Gaertn.<br>Family: Lecythidaceae<br>Common name: Hijol<br>Habit: Herb<br>Parts used: Whole plant, Leaves.<br>Medicinal use: Seed extract for anti tumor and anti fungal. |
| Sl. No. 21 | Binomial name: *Madhuca longifollia* (J. Konig) J. F. Macbr<br>Family: Sapotaceae<br>Common name: Mahua<br>Habit: Tree<br>Parts used: Flower and Bark<br>Medicinal use: Bark used for tonsillitis, gum trouble, Flower used for stimulant, laxative anti-helminthes, cough reliving, respiratory disorder. | Sl. No. 22 | Binomial name: *Cephalandra indica* (W. and A.) Naud<br>Family: Cucurbitaceae<br>Common name: Talakuch<br>Habit: Herb, Climber<br>Parts used: Whole plant<br>Medicinal use: Flower- Jaundice, Fruits- Leprosy, bronchitis, asthma, Leaves- Cough, skin disease, Root- Diabetes, gonorrhea. |
| Sl. No. 23 | Scientific name: *Hemidesmus indicus* R. Br.<br>Family: Asclepedaceae<br>Common name: Ananta mul<br>Habit: Herb<br>Parts used: Whole plant, Leaves,<br>Uses: Oligo-spermia, skin disease, piles, leucorrhoea. | Sl. No. 24 | Scientific name: *Syzazium jambos* L. (Aloston)<br>Family: Mytraceae<br>Common name: Jam<br>Habit: Tree<br>Parts used: Seeds and young Leaves<br>Uses: Diabetes (seed), dysentery, anti-inflammatory effect. |
| Sl. No. 25 | Scientific name: *Artemisia vulguris* L.<br>Family: Asteraceae<br>Common name: Nagdola<br>Habit: Herb<br>Parts used: Whole plant,<br>Uses: Malaria fever, worm repellant. | Sl. No. 26 | Scientific name: *Ocimum gratissimum* L.<br>Family: Lamiaceae<br>Common name: Chandan tulsi<br>Habit: Herb<br>Parts used: Whole plant,<br>Uses: Antiseptic, anti microbial property used in common cold and respiratory trouble. |
| Sl. No. 27 | Scientific name: *Morinda critifolia* L.<br>Family: Rubiaceae<br>Common name: Noni<br>Habit: Shrub<br>Parts used: Fruit and Leaves<br>Uses: Leaf, fruit, bark used to treat AIDS | Sl. No. 28 | Scientific name: *Saraca asoca* (Roxb.) Willd.<br>Family: Fabaceae<br>Common name: Ashok<br>Habit: Tree<br>Parts used: Bark, leaves and seed |

| | | | |
|---|---|---|---|
| | liver disease, small pox, cancer. | | Uses: Dysmenorrhoea, depression, leucorrhoea. |
| Sl. No. 29 | Scientific name: *Vitex negundo* Linn.<br>Family: Verbaneceae<br>Common name: Nishinda<br>Habit: Herb<br>Parts used: Whole plant,<br>Uses: Skin disease eczema, ring worm, spleen enlargement, expectorant, bronchitis, asthma. | Sl. No. 30 | Scientific name: *Murraya koenigii* (L.) Spreng.<br>Family: Rutaceae<br>Common name: Kari Pata<br>Habit: Shrub<br>Parts used: Leaves<br>Uses: Anti-diabetic, also used to treat piles, inflammation, itching, dysentery. |
| Sl. No. 31 | Scientific name: *Withania somnifera* (L.) Kuntze<br>Family: Solanaceae<br>Common name: Awshagandha<br>Habit: Herb<br>Parts used: Seed, Leaves and root<br>Uses: Arthritis, anxiety, oligspermia, asthma, insomnia, ulcer and neurological disorder. | Sl. No. 32 | Scientific name: *Cissus quadrangularis* L.<br>Family: Vitaceae<br>Common name: Harjora<br>Habit: Climbing Herb<br>Parts used: Whole plant<br>Uses: Heal the broken bone and ligament. |
| Sl. No. 33 | Scientific name: *Amomum aromaticum* Roxb.<br>Family: Zingiberaceae<br>Common name: Alach<br>Habit: Herb<br>Parts used: Seed<br>Uses: Anti oxidant, antiseptic, stomachic digestive. | Sl. No. 34 | Scientific name: *Clerodendrum indicum* L.<br>Family: Verbenaceae<br>Common name: Bamunhati<br>Habit: small tree<br>Parts used: Leaves<br>Uses: Allergy, asthma, fever, bronchitis, liver problem, tuberculosis. |
| Sl. No. 35 | Scientific name: *Psidium guajava* Linn.<br>Family: Mytraceae<br>Common name: Payara<br>Habit: Tree<br>Parts used: Fruits and Leaves<br>Uses: Fruit is used as a laxative and leaf is used for wound ulcers. | Sl. No. 36 | Scientific name: *Adhatoda vasica* Nees<br>Family: Acanthaceae<br>Common name: Vashak<br>Habit: Shrub<br>Parts used: Leaves<br>Uses: Bronchial disease, cough, expectorates |
| Sl. No. 37 | Scientific name: *Wedelia calendula* (L.) Less.<br>Family: Asteraceae<br>Common name: Bhringaraj<br>Habit: Herb<br>Parts used: Leaves,<br>Uses: Hair fall treatment, skin disease. | Sl. No. 38 | Scientific name: *Terminalia chebula* Retz.<br>Family: Combrataceae<br>Common name: Haritaki<br>Habit: Tree<br>Parts used: Fruits and seed<br>Uses: Laxative, digestive, purgative, and healing property. |
| Sl. No. 39 | Scientific name: *Asparagus racemosus* Willd<br>Family: Asparagaceae<br>Common name: Satamuli<br>Habit: Climber, Herb | Sl. No. 40 | Scientific name: *Euphorbia tirucalli* L.<br>Family: Euphorbiaceae<br>Common name: Lankaseji<br>Habit: Herb |

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| | Parts used: Roots and Leaves<br>Uses: Uterine tonic, hyper-acidity, galactogogue. | | Parts used: Whole plant<br>Uses: Used for treatment of cancer, tomour. |
| Sl. No. 41 | Scientific name: *Justicia gendarusa* Burm. f.<br>Family: Acanthaceae<br>Common name: Bishahari<br>Habit: Herb<br>Parts used: Leaves<br>Uses: Asthma, rheumatism, colic of children | Sl. No. 42 | Scientific name: *Stachytarpheta jamaicensis* L.<br>Family: Verbenaceae<br>Common name: Jerbo<br>Habit: Herb<br>Parts used: Leaves<br>Uses: Fresh leaf juice used to treat asthma, stomach ulcer |
| Sl. No. 43 | Scientific name: *Coleus aromaticus* Benth.<br>Family: Lamiaceae<br>Common name: Aijawan<br>Habit: Herb<br>Parts used: Leaves<br>Uses: Treatment of cough, sore throat, nasal | Sl. No. 44 | Scientific name: *Centella asiatica* L.<br>Family: Apiaceae<br>Common name: Thankuni<br>Habit: Herb<br>Parts used: Leaves<br>Uses: Leaf extract is used for liver complaints, gastric trouble, skin disease, amoebic dysentery. |
| Sl. No. 45 | Scientific name: *Hygrophyla spinosa* T. Anderson<br>Family: Acanthaceae<br>Common name: Kulekhara<br>Habit: Herb<br>Parts used: Leaves<br>Uses: The leaf juice is used to treat anaemia, jaundice, and body pain. | Sl. No. 46 | Scientific name: *Abutilon indicum* (L.) Sweet<br>Family: Malvaceae<br>Common name: Atibol<br>Habit: Shrubs<br>Parts used: Seeds and Bark<br>Uses: Seed used in piles, gonorrhea |
| Sl. No. 47 | Scientific name: *Alstonia scholaris* R. Br.<br>Family: Apocynaceae<br>Common name: Chatim<br>Habit: Herb<br>Parts used: Whole plant, Leaves,<br>Uses: The bark is used for digestive, antipyretic, laxative, malaria fever, tumor, ulcer, and cancer. | Sl. No. 48 | Scientific name: *Anacardium occidentali* L.<br>Family: Anacardiaceae<br>Common name: Kaju<br>Habit: Herb<br>Parts used: Whole plant, Leaves,<br>Uses: Root used as purgative, fruit used for skin disease. |
| Sl. No. 49 | Scientific name: *Acacia auriculiformis* A. Cunn. ex Benth.<br>Family: Mimosaceae<br>Common name: Sonajhuri<br>Habit: Herb<br>Parts used: Whole plant, Leaves,<br>Uses: Leaves used in dysentery. | Sl. No. 50 | Scientific name: *Bauhinia purpuria* L.<br>Family: Caesalpinaceae<br>Common name: Rakta kanchan<br>Habit: Herb<br>Parts used: Whole plant, Leaves<br>Uses: Bark used for skin disease, and ulcer, dried bud used in piles. |
| Sl. No. 51 | Scientific name: *Gardenia latifolia* G. Don<br>Family: Rubiaceae<br>Common name: Gandharaj<br>Habit: Herb<br>Parts used: Whole plant, Leaves<br>Uses: Root anti-helminths, antiseptic, dyspepsia, and nervous disorder. | Sl. No. 52 | Scientific name: *Mimosa pudica* L.<br>Family: Mimosaceae<br>Common name: Lajjabati<br>Habit: Herb<br>Parts used: Whole plant, Leaves<br>Uses: Leaves and roots are used in piles and fistula. |

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| Sl. No. 53 | Scientific name: *Sanscvieria roxburghiana* Schult & Schult. f.<br>Family: Asperagaceae<br>Common name: Murga<br>Habit: Herb<br>Parts used: Whole plant, Leaves,<br>Uses: Plant sap has antiseptic qualities, and leaves are used for bandages. | Sl. No. 54 | Scientific name: *Bryophyllum pinnatum* (Lam.) Oken<br>Family: Crassulaceae<br>Common name: Pasan veda<br>Habit: Herb<br>Parts used: Whole plant, Leaves,<br>Uses: Dysentery, cough, asthma, fever, constipation. |
| Sl. No. 55 | Scientific name: *Kalanchoe pinnata*. Lamm<br>Family: Crassulaceae<br>Common name: Patharkuchi<br>Habit: Herb<br>Parts used: Whole plant, Leaves,<br>Uses: Diuretic, wound healing, inflammatory activity. | Sl. No. 56 | Scientific name: *Azadirachta indica* A. Juss.<br>Family: Meliaceae<br>Common name: Neem<br>Habit: Herb<br>Parts used: Whole plant, Leaves,<br>Uses: Leucoderma, piles, wounds, all types of skin inflammation. |
| Sl. No. 57 | Scientific name: *Nyctanthus arbortristis* Linn.<br>Family: Oleaceae<br>Common name: Sheuli<br>Habit: Herb<br>Parts used: Whole plant, Leaves<br>Uses: Dry cough, Sciatica, arthritis, Dengue fever, ringworm. | Sl. No. 58 | Scientific name: *Termelia arjuna* (Roxb) Wight & Ara.<br>Family: Combretaceae<br>Common name: Arjun<br>Habit: Herb<br>Parts used: Whole plant, Leaves<br>Uses: Hypolipiderma, reduced cholesterol level, cardiac stimulant. |
| Sl. No. 59 | Scientific name: *Ocimum sanctum* L.<br>Family: Lamiaceae<br>Common name: Tulshi<br>Habit: Herb<br>Parts used: Whole plant, Leaves<br>Uses: Common cold & antiseptic. | Sl. No. 60 | Scientific name: *Crotalaria juncea* L.<br>Family: Fabaceae<br>Common name: Atashi<br>Habit: Herb<br>Parts used: Whole plant, Leaves<br>Uses:-To treat urinary problems, Eczema, and skin problem. |
| Sl. No. 61 | Scientific name: *Swietentia mahagoni* (L) Jacq<br>Family: Meliaceae<br>Common name: Mehogani<br>Habit: Tree<br>Parts used: Bark, Leaves and seed<br>Uses: Cure colon cancer, boost immunity, reduce cholesterol level. | Sl. No. 62 | Scientific name: *Mentha arvenensis* Linn.<br>Family: Lamiaceae<br>Common name: Pudina<br>Habit: Herb<br>Parts used: Whole plant, Leaves<br>Uses: Antiseptic, diuretic digestive |
| Sl. No. 63 | Scientific name: *Duranta erecta* L.<br>Family: Verbenaceae<br>Common name: Duranta<br>Habit: Small Shrub<br>Parts used: Leaves<br>Uses: Mosquito repellant, used to treat jaundice | Sl. No. 64 | Scientific name: *Ziziphus jujube* Mill.<br>Family: Rhamnaceae<br>Common name: Kul<br>Habit: Tree<br>Parts used: Fruit<br>Uses: Used for treating fever, and wound ulcers, leaves used for anti-helminths, stress and reduce constipation. |
| Sl. No. | Scientific name: *Emblica officinalis* L.<br>Family: Euphorbiaceae | Sl. No. | Scientific name: *Mimusops enlengi* L.<br>Family: Sapotaceae |

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| 65 | Common name: Amlaki<br>Habit: Herb<br>Parts used: Whole plant, Leaves<br>Uses: Antioxidant | 66 | Common name: Bakul<br>Habit: Herb<br>Parts used: Whole plant, Leaves<br>Uses: Prevent bleeding of gum, used to treat<br>dental carries, pyorrhea. |
| Sl. No. 67 | Scientific name: *Aerva aspera* L.<br>Family: Amaranthaceae<br>Common name: Apang<br>Habit: Herb<br>Parts used: Whole plant and seed<br>Uses: Used for treatment of depression, anxiety and hydrophobia. | Sl. No. 68 | Scientific name: *Crenum asiaticum* L.<br>Family: Amaryllidaceae<br>Common name: Sukha darshan<br>Habit: Herb<br>Parts used: Leaves<br>Uses: Leaves are used in carbuncle, cancer, and wound. |
| Sl. No. 69 | Scientific name: *Aloe berberadensis* Mill.<br>Family: Liliaceae<br>Common name: Ghrita kumari<br>Habit: Herb<br>Parts used: Leaves<br>Uses: Joint pain, skin disease, liver problem. | Sl. No. 70 | Scientific name: *Rauvolfia serpentine* (wall.) Benth. ex. Hook. f.<br>Family: Apocynaceae<br>Common name: Sarphagandha<br>Habit: Herb<br>Parts used: Roots and seeds<br>Uses: Hypertension, reduce high blood pressure. |
| Sl. No. 71 | Scientific name: *Gomphrena globosa*<br>Family: Amaranthaceae<br>Common name: Botam phul<br>Habit: Herb<br>Parts used: Leaves<br>Uses: Cough, diabetes, oliguria (child) | Sl. No. 72 | Scientific name: *Euphorbia ayapana* Vent.<br>Family: Euphorbiaceae<br>Common name: Ayapon<br>Habit: Herb<br>Parts used: Leaves<br>Uses: Leaves used in antiseptic, haemorrhage, foul ulcer, stomachache, anti-bacterial and anti fungal. |
| Sl. No. 73 | Scientific name: *Amaranthus spinosus* L.<br>Family: Amaranthaceae<br>Common name: Kata Notey<br>Habit: Herb<br>Parts used: Whole plant<br>Uses: Whole plant as laxative, diuretic, stomachic, anti-pyretic, improve appetite, hallucination, bronchitis, Leucorrhoea | Sl. No. 74 | Scientific name: *Andrographis paniculata* (Brum. f.) Wall. ex. Nees<br>Family: Acanthaceae<br>Common name: Kal Megh<br>Habit: Herb<br>Parts used: Whole plant<br>Uses: Whole plant used in fever, dyspepsia, scabies, leprosy, whooping cough, liver disorder, and loss of appetite. |
| Sl. No. 75 | Scientific name: *Amaranthus viridis* L.<br>Family: Amaranthaceae<br>Common name: Bon Notey<br>Habit: Herb<br>Parts used: Whole plant<br>Uses: Whole plant used in stomachic, diuretic, colic pain, piles, gonorrhea, Root- stop bleeding from cut wounds. | Sl. No. 76 | Scientific name: *Cassia tora* L.<br>Family: Caselpinaceae<br>Common name: Chakwar<br>Habit: Herb<br>Parts used: Seed and Leaves<br>Uses: Leaves used in dysentery and skin disease. |

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| Sl. No. 77 | Scientific name: *Carrica papya*<br>Family: Caricaceae<br>Common name: Pepe<br>Habit: Small tree<br>Parts used: Fruit and Milky juice, and leaves<br>Uses: Milky fruit juice used to remove blemishes, anti-helminthes, diuretic, constipation, glandular tumor, eczema. | Sl. No. 78 | Scientific name: *Curcuma longa* L.<br>Family: Zingiberaceae<br>Common name: Halud<br>Habit: Herb<br>Parts used: Rhizome<br>Uses: Anti-oxidant, anti-inflammatory, anti-microbial and have healing properties |
| Sl. No. 79 | Scientific name: *Paederia foetida* L.<br>Family: Rubiaceae<br>Common name: Gadal<br>Habit: Climber, Herb<br>Parts used: Whole plant<br>Uses: Rheumatism, Leaves- applied to urinary infection, urinary bladder stone, flatulence, diarrhoea and dysentery, Fruit- toothache, Root- piles and liver inflammation. | Sl. No. 80 | Scientific name: *Tridax procumbens*.<br>Family: Asteraceae<br>Common name: Tridakha<br>Habit: Herb<br>Parts used: Whole plant<br>Uses: Wound healing, anti-coagulant, anti-fungal and insect repellent, infectious skin disease, liver disorder, gastritis, heart burn. |
| Sl. No. 81 | Scientific name: *Pouzolzia indica*.<br>Family: Uitriaceae<br>Common name: Tuici<br>Habit: Herb<br>Parts used: Leaves and root<br>Uses: Leaves used in gangrenous ulcers, syphilis, and gonorrhea. | Sl. No. 82 | Scientific name: *Commelina benghalensis*.<br>Family: Comelinaceae<br>Common name: Kansira<br>Habit: Herb<br>Parts used: Whole plant.<br>Uses: Leprosy, infertility in women, sore throat and burns, diarrhoea. |
| Sl. No. 83 | Scientific name: *Agaratum conyzoids*<br>Family: Asteraceae<br>Common name: Uchunti<br>Habit: Herb<br>Parts used: Whole plant<br>Uses: (i) Whole plant: The whole plant is anti-inflammatory and anti-allergic. The plant's juice is used for healing wounds, cuts, etc.<br>(ii) Leaves: The fume of dried leaves used as mosquito repellents. | Sl. No. 84 | Scientific name: *Sida cordifolia* Linn.<br>Family: Malvaceae<br>Common name: Bala<br>Habit: Erect perennial herb<br>Parts used: Roots, Leaves and bark<br>Uses: (i) Root juice: Healing the wounds<br>(ii) Leaves: Used in ophthalmia, the decoction of plants used in piles. It also used for respiratory troubles.<br>(iii) Barks: It is used as an astringent |
| Sl. No. 85 | Scientific name: *Sonchus arvensis* Linn.<br>Family: Asteraceae<br>Common name: Dudhi<br>Habit: Annual herb<br>Part Uses: Roots and leaves<br>Uses: Root-useful in jaundice and leaves - cooling, sedative, diuretic, useful in cough, bronchitis and asthma | Sl. No. 86 | Scientific name: *Piper longum L.*<br>Family: Piperaceae<br>Common name: pipul<br>Habit: Climber<br>Parts used: Seed and leaves<br>Uses: Commonly used in chronic bronchitis, asthma, constipation, gonorrhoea, paralysis of the tongue, diarrhea, cholera, malaria and respiratory trouble |
| Sl. No. | Scientific name: *Ricinus communis* Linn.<br>Family: Euphorbiaceae | Sl. No. | Scientific name: *Phyllanthus niruri* Auct. |

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| 87 | Common name: Varenda<br>Habit: Annual Shrubs<br>Parts Uses: Leaves and seed<br>Uses: Seed oil is purgative, and leaf paste is used as poultice on sore, gout, or rheumatic swelling. | 88 | Family: Phyllanthaceae<br>Common name: Bhui amla<br>Habit: Annual Herbs<br>Part uses: Whole plant<br>Uses: Seed is used in jaundice, liver disease. The whole plant treats gonorrhea, menorrhagia and other genital disease. The leaves are used in stomachic, dysentery and ulcer. |
| Sl. No. 89 | Scientific name: *Oxalis corniculata* Linn.<br>Family:- Oxalidaceae<br>Common name: Amrul<br>Habit: Small perennial Herb<br>Parts Uses: Entire plant<br>Uses: Pant is used to treating scurvy, influenza fever, urinary tract infection, muscular swelling and in stomachic | Sl. No. 90 | Scientific name: *Heliotropium indicum* Linn.<br>Family: Boraginaceae<br>Common name: Hatisur<br>Habit: Erect annual herbs<br>Parts Uses: Leaves<br>Uses: Leaves - applied to boils, ulcers, wounds, and in stings of insect |
| Sl. No. 91 | Scientific name: *Ocimum basilicum* Linn.<br>Family: Lamiaceae<br>Common name: Babui tulsi<br>Habit: Branched scented herb<br>Part Uses: Whole plant<br>Uses: Root is used in bowel complaints of children, Seed-useful in dysentery, diarrhoea, Flower-diuretic, carminative and Leaves are used in respiratory trouble. | Sl. No. 92 | Scientific name: *Nicotiana plumbaginifolia* Viv.<br>Family: Solanaceae<br>Common name: Bon tamak<br>Habit: Annual Herbs<br>Parts Uses: Leaves<br>Uses: Sedative, emetic, antiseptic used in rheumatic pain and swelling, and also in skin disease. |
| Sl. No. 93 | Scientific name: *Nerium olenader* Linn.<br>Family: Apocynaceae<br>Common name: Rakta karabi<br>Habit: Small tree<br>Parts Uses: Leaves and roots<br>Uses: Root bark is used in skin diseases of a scaly nature and leprosy. Leaf paste is used to reduce swelling. | Sl. No. 94 | Scientific name: *Cajanus cajan* (Lin) Mill<br>Family: Papilionaceae<br>Common name: Arahar<br>Habit: Shrub<br>Parts used: Leaves and seeds<br>Uses: Leaves are used in the treatment of cough, bronchitis, diarrhoea, sores, wounds and liver problem. Seed are used to treat mouth ulcers, tumors, and vomiting. |
| Sl. No. 95 | Scientific name: *Nymphaea stellata* Wild.<br>Family: Nymphaeaceae<br>Common name: Saluk<br>Parts used: Whole plants, seeds, flower<br>Uses: i) It has antiseptic and anti-microbial properties.<br>ii) It is used for the treatment of chronic diarrhoea.<br>iii) Seed: Seed is used for diabetes<br>iv) Flower: Flower cooling is used as an astringent for piles, liver disease | Sl. No. 96 | Scientific name: *Lawsonia inermis* Lin.<br>Family: Lythraceae<br>Common name: Mehendi<br>Habit: Shrub<br>Parts used: Leaves and Bark<br>Uses: Bark is useful in jaundice, enlargement of the spleen, and skin disease. Leaves externally used in headaches, promote hair growth and burning feet. |

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| Sl. No. 97 | Scientific name: *Mimosa pudica* Linn.<br>Family: Mimosaceae<br>Common name: Lajjabati<br>Habit: Small prostrate diffuse herb<br>Parts used: Root and leaves<br>Uses: i) Root and leaves: Root and leaves are used in piles and fistula.<br>ii) Leaves: The pest of Leaves are applied to cure for hydrocele. | Sl. No. 98 | Scientific name: *Boerhaavia repens* L.<br>Family: Nyctaginaceae<br>Common name: Punarnava<br>Habit: Branched diffused herbs<br>Parts use: Whole plant<br>Uses: i) Whole plant is a diuretic, laxative, expectorant, useful in asthma, diarrhoea, dysentery, Oedema, anaemia, Jaundice, Cholera |
| Sl. No. 99 | Scientific name: *Euphorbia hirta* Linn.<br>Family: Euphorbiacea<br>Common name: Dudurli<br>Habit: Herb<br>Parts used: Whole plant<br>Uses: i) Plant is used in the disease of children worm, bowel complaints, cough, bronchial infection, asthma, dysentery etc. | Sl. No. 100 | Scientific name: *Acalypha indica* Linn.<br>Family: Euphorbiacea<br>Common name: Muktojhuri<br>Habit: Erect annual herbs<br>Parts used: Root, leaves<br>Uses: Root: Decoction of root is emetic, expectorant, and useful in pneumonia and asthma.<br>ii) Leaves: Laxative and also used in scabies. |
| Sl. No. 101 | Scientific name: *Croton bonplandianum* L.<br>Family: Euphorbiacea<br>Common name: Bontulsi<br>Habit: Erect much-branched herb<br>Parts used: Root, bark, seed and leaf<br>Uses: Seed and bark are used for the treatment of jaundice, acute constipation<br>ii) Leaves are used for the treatment of ringworm, bronchitis, asthma and body swelling | Sl. No. 102 | Scientific name: *Solanum nigram* Linn.<br>Family: Solanaceae<br>Common name: Kakamachi<br>Habit: Annual herb<br>Parts used: Leaves, fruits<br>Uses: (i) Leaf is used to treatment for skin diseases like scabies, ringworm, swelling, and herpes disease.<br>(ii) Leaf juice used for the treatment of rat bites.<br>(iii) Leaves, fruits: Leaf and fruit used in asthma. |
| Sl. No. 103 | Scientific name: *Physalis minima*<br>Family: Solanaceae<br>Common name: Bantepari or patka<br>Habit: Small annual Herb<br>Parts used: Fruit and leaf<br>Uses: leaves used for treatment of diabetes, jaundice, leprosy, measles, worm manifestation<br>ii) Fruit used as diuretic and purgative | Sl. No. 104 | Scientific name: *Vernonia cinerea* Linn.<br>Family: Asteraceae<br>Common name: Kukasim<br>Habit: Perennial herb<br>Parts used: Entire plant<br>Uses: the paste of the leaves and stem is used for the treatment of wounds and localize swelling, elephantiasis disease, skin disease<br>Root and leaves are also used in constipation. |

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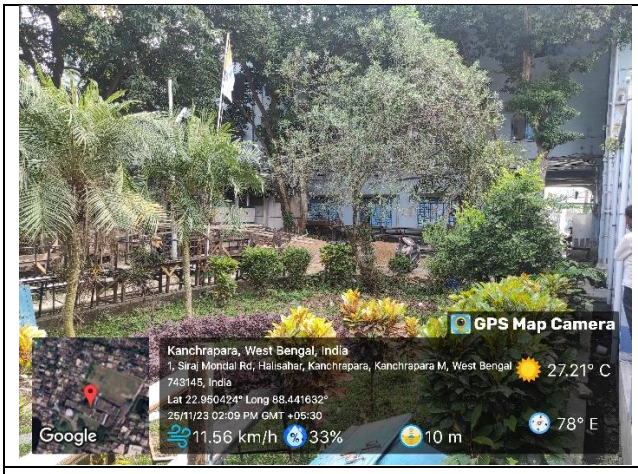
| Sl. No. 105 | Scientific name: *Eclipta alba*<br>Family: Asteraceae<br>Common name: Keshuth<br>Habit: Herb<br>Parts used: Leaves and root.<br>Uses: Root-emeti, purgative, applied externally as antiseptic to ulcers and wounds. Leaves are useful to jaundice and also promote the hair growth. | Sl. No. 106 | Scientific name: *Scoparia dulcis*<br>Family: Plantaginaceae<br>Common name: Bon dhone<br>Habit: Small Herb<br>Parts used: Leaves<br>Uses: Traditionally used in diabetes, dysentery, headache, toothache, earache stomach problems. |
| Sl. No. 107 | Scientific name: *Cassia occidentalis* L.<br>Family: Caesalpiniaceae<br>Common name: Chakor<br>Habit: Small shrub<br>Parts used: Whole plants<br>Uses: Plant- purgative, diuretic, febrifuge, tonic and used fully in skin disease | Sl. No. 108 | Scientific name: *Cassia alata* L.<br>Family: Caesalpiniaceae<br>Common name: Dadmari<br>Habit: Shrub<br>Parts used: Leaves,<br>Uses: i) Leaves: The leaves are used as asthma, diuretic, purgative, ringworm and other skin diseases. |
| Sl. No. 109 | Scientific name: *Cyperous rotundus* L.<br>Family: Cyperaceae<br>Common name: Muthaghas<br>Habit: Herb<br>Parts used: Herb, Rhizome/<br>Uses: 2-3 teaspoons of rhizome extract or paste of (5 rhizomes) are used to treat for eliminating female infertility and irregular menstrual cycle 21 days after every menstrual cycle. | Sl. No. 110 | Scientific name: *Cassia alata* (L.) Roxb.<br>Family: Fabaceae<br>Common name: Dadmari<br>Habit: Shurb<br>Parts used: Leaves<br>Uses: Scabies, eczema, candidacies and fungal disease |
| Sl. No. 111 | Scientific name: *Euphorbia meriifolia*<br>Family: Euphorbiaceae<br>Common name: Manasa Gach<br>Habit: Shrub,<br>Parts used: old Leaves<br>Uses: Dry cough, chest pain, broken bone pain. | Sl. No. 112 | Scientific name: *Barleria lupulina* Lindl.<br>Family: Acanthaceae<br>Common name: Kata Bishalya Karani<br>Habit: Shrub<br>Parts used: Leaves<br>Uses: Eczema, stop bleeding from cuts and wounds and accelerate their recovery. |
| Sl. No. 113 | Scientific name: *Stephania japonica* (Thumb) Miers<br>Family: Meninspermaceae<br>Common name: Nemuwa<br>Habit: Climber,<br>Parts used: Stem, Leaves<br>Uses: Rheumatic pain, arthritis, broken bone pain, joint pain | Sl. No. 114 | Scientific name: *Jatropha gossypifolia* Linn.<br>Family: Euphorbiaceae<br>Common name: Lal Vanda<br>Habit: Shrub<br>Parts used: Exudates<br>Uses: Dysentery, skin diseases, rheumatism |



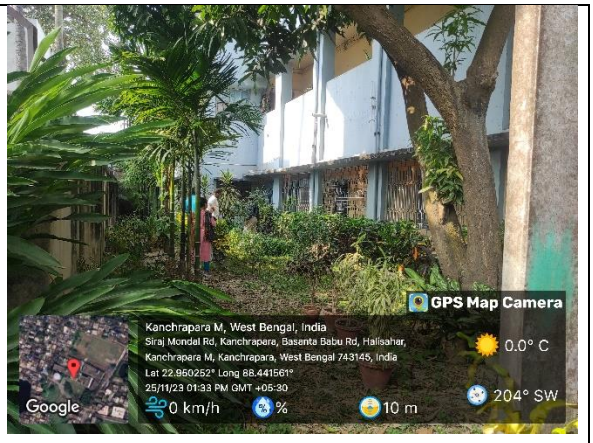



**Figure: Our medicinal garden (114 numbers of medicinal plants)**

**Title of the R&D Project:**
Development of a wild varieties medicinal plants garden and its management for conservation of Semi Urban development
**PI:** Mrs. Bhanumati Sarkar, Assistant Professor of Botany
**Total approved Budget:** RS. 680000/-
**First Sanctioned G. O. No.:** 254(sanc)-ST/P/S&T/1G-30/2018 Dated 25/2/2019
**Area:** Medicinal garden at college premises which coved about 7520 sq.ft +1320 sq.ft = Total 8840 sq. ft.

**List of Floral groups:**

| Sl | Scientific name | Common name | Family | No. of plant |
|---|---|---|---|---|
| 1 | *Peltophorum pterocarpum* (DC.) K.Heyne | Radhachura | Fabaceae | 1 |
| 2 | *Casuarina equisetifolia* L. | Jhau | Casuarinaceae | 3 |
| 3 | *Lagerstroemia speciosa* (L.) Pers. | Jarul | Lythraceae | 2 |
| 4 | *Samanea saman* (Jacq.) Merr. | Shirish | Fabaceae | 2 |
| 5 | *Swietenia mahagoni* (L.) Jacq. | Mehagoni | Meliaceae | 3 |
| 6 | *Bauhinia purpurea* L. | Rakta Kanchan | Fabaceae | 2 |
| 7 | *Alstonia scholaris* L.R.Br. | Chhatim | Apocynaceae | 1 |
| 8 | *Polyalthia lingifolia* (Sonn.) Thwaites | Debdaru | Annonaceae | 7 |
| 9 | *Tectona grandis* L.f. | Segun | Verbanaceae | 1 |
| 10 | *Areca catechu* L. | Supari | Arecaceae | 4 |

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| 11 | *Terminalia arjuna* (Roxb)Wight& Arn | Arjun | Combretaceae | 6 |
| 12 | *Acacia auriculiformis* A.Cunn.ex.Benth | Sonajhuri | Fabaceae | 4 |
| 13 | *Ficus religiosa* L. | Ashwattha | Moraceae | 1 |
| 14 | *Psidium guajava* L. | Peyara | Myrtaceae | 7 |
| 15 | *Mangifera indica* L. | Aam | Anacardiaceae | 23 |
| 16 | *Syzygium cumini* (L.) Skeels | Jam | Myrtaceae | 2 |
| 17 | *Mimusops elengi* L. | Bakul | Sapotaceae | 2 |
| 18 | *Neolamarckia cadamba* (Roxb.) Bosser | Kadam | Rubiaceae | 2 |
| 19 | *Syzygium samarangense* (Blume) Merr. & L.M.Perry[ | Jamrul | Myrtaceae | 3 |
| 20 | *Carissa carandas* L. | Karamcha | Apocynaceae | 2 |
| 21 | *Citrus limetta* Risso | Lebu | Rutaceae | 5 |
| 22 | *Ziziphus mauritiana* Lam. | Kul | Rhamnaceae | 4 |
| 23 | *Tecoma stans* (L.) Juss. ex Kunth | Chandra prava | Bignoniaceae | 1 |
| 24 | *Nerium oleander* L. | Karabi | Apocynaceae | 1 |
| 25 | *Pterocarpus santalinus* Linn | Rakta Chandan | Fabaceae | 1 |
| 26 | *Terminalia chebula* Retz. | Haritaki | Combretaceae | 1 |
| 27 | *Hibiscus rosa-sinensis* | Joba | Malvaceae | 2 |
| 28 | *Thuja occidentalis* L | Jhau | Cupressaceae | 209 |
| 29 | *Roystonea regia* | Palm | Arecaceae | 46 |
| 30 | *Euphorbia milii* Des Moul. | Kata mukut | Euphorbiaceae | 11 |
| 31 | *Azadirachta indica* A.Juss. | Neem | Meliaceae | 2 |
| 32 | *Phyllanthus emblica* L. | Amlaki | Phyllanthaceae | 4 |
| 33 | Carica papaya L. | Pepe | Caricaceae | 3 |
| 34 | *Averrhoa carambola* L. | Kamranga | Oxalidaceae | 1 |
| 35 | *Punica granatum* L. | Dalim | Lythraceae | 2 |
| 36 | *Artocarpus heterophyllus* Lam. | Kathal | Moraceae | 1 |
| 37 | *Khaya anthotheca* (Welw.) C.DC. | Lambu | Meliaceae | 13 |

**7. Conclusion:** According to the results of a recent green audit, the Kachrapara College has identified a few sites on campus that may use some work to further sustainability goals. Implementing the offered solutions has the potential to result in a number of positive environmental outcomes, including decreased energy consumption, improved waste management, enhanced water use

efficiency, expanded sustainable transportation options, and heightened environmental consciousness. By putting these alterations into effect, Kachrapara College will be able to demonstrate to its pupils how to responsibly care for the environment and make a contribution towards a more sustainable future.

# Green Audit Report (2018-19)
# KANCHRAPARA COLLEGE


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**Certificated ISO based**

## Contents:

## 1. Introduction:

The introduction highlights the goals of the green audit and provides an overview of the college's commitment to sustainability. It also describes the scope of the audit. To evaluate the college's environmental impact, sustainability practices, and areas for growth, the Green Audit Report was conducted at Kachrapara College. This all-encompassing analysis has assessed the college's energy use, waste management, water consumption, transportation options, and general environmental consciousness analysis. The findings and suggestions to strengthen the college's dedication to environmental responsibility and sustainable practices are detailed in this study.

## Green Audit Working Team (2018-19):

The green audit team has prepared the following report on the basis of data collected from the college campus. Care has been taken to produce the report with compilation of authentic data and produce them in good faith.

| Sl No | Name of the Members | Designation |
|---|---|---|
| 1 | Dr. Pranab Kumar Bera | Principal |
| 2 | Dr. Pradip Kumar Biswas | IQAC Coordinator |
| 3 | Dr. Subhabrata De | Evening -In-Charge |
| 4 | Sandip Mallick | Bursar |
| 5 | Dr. Bimalendu Ghosh, | GB Member |
| 6 | Dr. Biswajit Kar, Department of environmental science | Member |
| 8 | Ashoke Ghosal, Head Clerk | Member |

| Sl No | Name of the Members and Designation | Signatures with Stamp |
|---|---|---|
| 1 | Dr. Pranab Kumar Bera, Principal | P. K. Bera<br>Principal<br>Kanchrapara College<br>Kanchrapara, 24 Pgs (N) |
| 2 | Dr. Pradip Kumar Biswas, IQAC Coordinator | Co-Ordinator<br>IQAC<br>Kanchrapara College<br>Kanchrapara, 24 Pgs (N) |
| 3. | Mr. Amalesh Kumar Mandal, Lead Auditor,Management System Consultancy | Amalesh Kr. Mandal |

| | | |
|---|---|---|
| 3 | Dr. Subhabrata De, Evening Incharge | Associate Professor<br>Kanchrapara College<br>P.O.-Kanchrapara, Dist.-24 Pgs.(N) |
| 4 | Sandip Mallick, Bursar | Bursar<br>Kanchrapara College |
| 5 | Dr. Bimalendu Ghosh, GB Member | Head of the Department<br>Department of Political Science<br>Kanchrapara College<br>Kanchrapara, North 24 Parganas |
| 6 | Dr. Biswajit Kar, Head, Department of Environmental Science, Member | Departmental-in-Charge<br>Department of Environmental Science<br>Kanchrapara College<br>Kanchrapara, North 24 Parganas |
| 8 | Ashoke Ghosal, Head Clerk, Member | Head Clerk (Offg.)<br>Kanchrapara College |

## 2. The Necessity of a Green Audit:

The need for green audits, also known as environmental audits or sustainability audits, is rising in today's society for several reasons.

**(a) Effects on the Environment:** Green audits help to assess and lessen an organization's harmful environmental impact. They analyse factors such as energy consumption, trash generation, water use, and emissions to find areas that could be improved to decrease environmental harm.

**(b) Conformity with Regulations:** The environmental regulations and rules established in many countries must be followed by organizations. Green audits help colleges adhere to standards to avoid penalties or other legal implications for non-compliance.

**(c) Savings on Expenses:** Green audits can identify inefficient practices, providing opportunities for cost savings. By studying energy use, resource consumption, and waste management, businesses can put strategies into practice to reduce operational costs and increase overall efficiency.

**(d) Reputation and the Expectations of Stakeholders:** Customers and other stakeholders now call organisations to adopt more environmentally friendly

practices. Green audits promote trust among customers, employees, investors, and communities by demonstrating an organization's transparency and commitment to sustainability.

**(e) Risk Management:** Environmental hazards can have serious financial and reputational ramifications for firms, including pollution events, regulatory non-compliance, and supply chain interruptions. By evaluating environmental management systems, ensuring sufficient controls are in place, and putting preventative measures in place to deal with possible problems, green audits assist in identifying and mitigating these risks.

**(f) Continuous Improvement:** Green audits encourage a continuing commitment to sustainability rather than being one-time events. Organizations can see trends, set goals, and implement improvement initiatives by routinely evaluating and tracking environmental performance. This iterative process promotes a culture of sustainability and propels long-lasting transformation.

**(g) Sustainable Development Goals (SDGs):** An international framework for solving urgent environmental and social issues is provided by the Sustainable Development Goals. Organizations can better align their operations with these objectives with the aid of green audits, paving the way for a more just and sustainable future. Green audits are essential to evaluate, enhance, and confirm environmental performance. They allow companies to control risks, comply with rules, cut costs, improve reputations, and support sustainable development.

## 3. Methodology for Green Audit:

Audits of an organization's environmental performance and practices are known as "green," "environmental," or "sustainability" audits. They entail assessing the company's influence on the environment, resource usage, waste management, and adherence to environmental legislation. Here is a procedure for carrying out a green audit:

(a) Planning:

(b) Identify audit team and resources:

(c) Develop an audit plan: Create a detailed plan outlining audit activities, timelines, responsibilities, and communication channels.

(d) Data Collection:

(e) Gather information:

(f) Conduct site visits and interviews:

(g) Review documentation:

(h) Evaluation and Analysis:

(i) Assess environmental impacts:
(j) Evaluate compliance:
(k) Identify strengths and weaknesses:
(l) Quantify results:
(m) Reporting:
(n) Prepare an audit report:
(o) Communicate results:
(p) Follow-up and Improvement:
(q) Develop an action plan:
(r) Monitor progress:
(s) Continuous improvement:

The methodology adopted to conduct the Green Audit of the Institution had the following components.

**3.1. On-site Visit :**

The Green Audit Team carried out the five-day field trip. The tour's main goal was to evaluate the Institution's waste management procedures, energy conservation tactics, and other aspects of its green cover. The protocols for sample collection, preservation, and analysis were followed scientifically.

**3.2. Focus Group Discussion :**

The nature club, staff, and management members participated in focus group discussions on various facets of the green audit. Identification of attitudes and awareness towards environmental issues at the institutional and local levels was the main topic of discussion.

**3.3. Energy and waste management Survey:**

The audit team evaluated the college's waste generation, disposal, and treatment facilities as well as its energy usage pattern with the assistance of teachers and students. A comprehensive questionnaire survey method was used to carry out the monitoring.

## 4. Target Areas of Green Auditing:

**Energy Consumption:**

The college's electrical and HVAC usage trends are dissected in this section. It detects energy-efficient practices and points out places to make improvements, such as through lighting retrofits, HVAC system optimisation, and the introduction of energy-saving devices.

**Waste Management:**
Recycling initiatives, landfill diversion rates, and other waste management practices on campus are all part of the evaluation. It proposes measures to cut down on garbage, boost recycling, and promote eco-friendly behaviour all over campus.

**Water Usage:**
The college's water consumption, conservation initiatives, and opportunities for water savings are all evaluated in this report. It recommends promoting water conservation through the use of water-efficient fixtures, rainwater collection, and educational programmes.

**Transportation:**
In this section, we take a look at how the college neighbourhood gets around. Bicycle-sharing initiatives, financial incentives for carpooling, and collaborations with public transportation providers are some of the eco-friendly commute solutions investigated.

**Green Spaces and Biodiversity:**
The report assesses the school's green areas, biodiversity protection initiatives, and landscaping methods. Preserving natural areas, growing native species and supporting programmes that help pollinators are all possible suggestions.

**Curriculum and Awareness:**
This analysis considers the ways in which sustainability and environmental studies are taught and discussed on campus. It suggests fostering environmental awareness and green initiatives across all academic fields.

**Stakeholder Engagement:**
Student, professor, and staff participation in sustainability initiatives is assessed in this report. It suggests ways to increase participation and diversity in environmentally friendly activities.

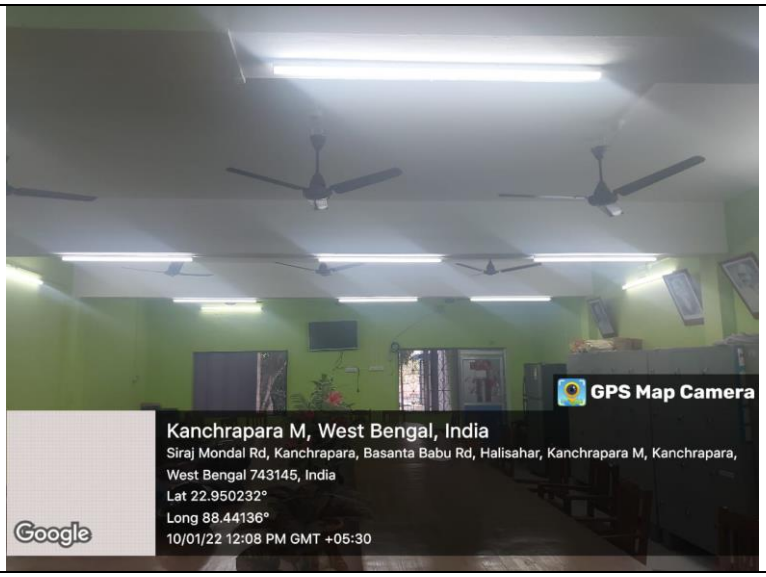
**Future Goals and Targets:**
This section establishes attainable sustainability targets for the university based on audit findings. It lays out both immediate and far-off goals for improving the organization's environmental impact.

**Conclusion:**

The implementation plan details the steps to be taken, who will be responsible for them, and when they will be completed in order to meet the suggested sustainability targets. Budgetary constraints, collaboration with external organisations, and methods for assessing performance are all possibilities.

**Yearly Records (2018-19):**

| Electrical device/items | Number | Power (watt) | Usage time (hr/day) |
|---|---|---|---|
| Normal Tubelight | 650 | 58500 | 10:00 am to 5:00 pm |
| LED Tubelight | 0 | 0 | Do |
| Normal Bulb | 40 | 2400 | Do |
| LED Bulb | 0 | 0 | Do |
| Ceiling Fan | 285 | 17100 | Do |
| Wall fan | 44 | 2640 | Do |




**LED lights**


**Silent DG sets are designed to generate a very low level of background noise, just as their name suggests. Their structures are constructed to eliminate virtually all noise and vibrations due to careful design. Because of this, they are not harmful to the environment and are ideally suited for use in residential areas.**

## 4.2. Waste Management:

**4.2.1. Recycling:** Even though recycling containers could be found all throughout campus, the audit discovered that there was insufficient separation of recyclable items and inadequate information regarding products that might be recycled. Raising the recycling rate can be done in a number of ways, including by enhancing the signs, providing clear instructions, and implementing a comprehensive recycling education programme.

**4.2.2. Composting:** To appropriately dispose of organic waste produced by Hostel occupants (both boys and girls), composting facilities might be set up at the organisation. Composting not only reduces the quantity of waste sent to landfills but also produces useful compost that may be utilised for campus landscaping and gardening.

**Table: Different types of waste generated in the college and their disposal**

| Types of waste | Particulars | Disposal method |
|---|---|---|
| E-Waste | Computers, electrical and electronic parts | After a while, we can offer these from a separate tank. |

| | | |
|---|---|---|
| Plastic waste | Pen, Refill, Plastic water bottles and other plastic containers, wrappers etc | Single-use plastic bottles, jars, and bags. Encourage reusable water bottles and other containers. Establish plastic recycling containers, and after a certain time, we can sell the recyclables directly. |
| Solid wastes | Paper waste, Damaged furniture, paper plates, food wastes | Maintenance energy conversion reuse. College composting systems turn food waste into nutrient-rich compost for campus landscaping and community gardens. Institutions can work with local farms to collect food waste. |
| Chemical wastes | Laboratory waste | Water neutralises. Follow safety rules when handling hazardous waste. |
| Wastewater | Washing, urinals, bathrooms | Soak pits |
| Glass waste | Broken glass wares from the labs | Glass should be recycled separately from other recyclables in glass recycling containers. Contact local recycling centres to recycle glass properly. |
| Sanitary Napkin | - | Burn |

## 4.3. Water Usage:

**4.3.1. Water Fixtures:** Numerous locations within the college had outdated and ineffective water fixtures, which caused excessive water use. Water resources can be saved by swapping these fixtures for low-flow models and encouraging staff and students to practice water-saving habits.

## Water management table:

| Water Management Tasks | Frequency | Responsible Party |
|---|---|---|
| Routine examination of water supplies | Monthly | Green Audit Working Team |
| Testing for drinking water quality | Half-yearly | Do |
| Awareness of water conservation | Half-yearly | Green Audit Working Team & various department |
| Infrastructure for water distribution that needs upkeep and repair | As needed | Caretaker |
| Reporting and analysis of water use | Annually | Green Audit Working Team & Caretaker |
| Learn what causes excessive water consumption. | As needed | Caretaker |

## Tabular data detailing the subject at hand:

| Sl No | Parameters | Response |
|---|---|---|
| **1** | Source of water | Municipality, Underground, Pond (1500 sqft) & Rain Harvesting Water<br>**Note:** The ground's water serves as a drinking water supply for around 3,500 people, including students and staff members. |
| **2** | Source of Drinking Water | Ground's water |
| **3** | Any treatment for drinking water | Nil **Note:** Water purifiers have been installed in 1-2 numbers on each floor and are maintained for 3–4 months afterward. |
| **4** | What is the total number of motors that are used? | 02 numbers |
| **5** | What is the total number of water tanks? Capacity of tank | 10 numbers@ 1000 liters each |
| **6** | Tap water | 157 numbers |
| | Quantity of water pumped every | 10000 liters/per day |

| | | |
|---|---|---|
| | day | |
| **7** | Do you waste water, and if so, why? | No |
| **8** | How much water is required for gardening purposes? | 600 liters/per day |
| **9** | How many water coolers are there in total? | 03 |
| **10** | Do you have access to rainwater harvesting? | Yes |
| **11** | The number of units harvested and the total volume of water | 01 number, We have constructed a water canal to connect a college pond that is 1500 square feet and 5,000 liters of tanks to store rainwater. |
| **12** | Any leaky taps | None |
| **13** | Daily amount of water that is lost. | Not applicable |
| **14** | Is there any kind of plan for the management of water? | Promote water conservation, pollution reduction, and sustainable water management. Water rights and allocation procedures should be clear to distribute water fairly among multiple users. |
| **15** | Have any methods for conserving water been implemented? | Rainwater Harvesting |

**4.4. Transportation:**

**4.4.1. Public Transport:** The college's carbon footprint can be significantly reduced by encouraging employees and students to use public transport. Sustainable transport solutions can be promoted by offering cheap bus passes, encouraging carpooling, and supporting bicycle infrastructure.

| | Students | Employee | Total |
|---|---|---|---|
|  | Average numbers over 6 days in a peak session | | |
| **Bicycles are being used as modes of transportation for getting to and around the college by students, non-teaching staff and teaching staff.** | Girls- 350<br>Boys-120 | 33 | 503 |

**4.5. Overall Environmental Awareness:**

**4.5.1. Curriculum Integration:** The institution can integrate environmental awareness and sustainability into its curriculum across various subject areas. This strategy will guarantee that students receive instruction and training in environmental stewardship, encouraging sustainable thinking.

| Environmental awareness across different subjects | Parameters | Program time |
|---|---|---|
| Language Arts | Discuss texts from literature that are in some way connected to topics concerning the environment, such as conservation or environmental advocacy. Compose poetry or essays that argue for the protection of the | Whole year |

| | | |
|---|---|---|
| | environment and use persuasion. Conduct research on a variety of environmental topics, then present your findings. Through various awareness programs, they understand the environmental laws and regulations that apply on the local, national, and international levels. Discuss the roles that governments, NGOs, and people play in the effort to solve environmental problems. Investigate the environmental concerns from both a historical and cultural point of view. | |
| Arts | Investigate the causes of climate change and possible solutions to the problem. Analyse the impact that human activities have had on different landscapes as well as the distribution of natural resources. Studies should be done on urbanization, logging, and industry's impact on the natural environment. Investigate geographical approaches to resolving environmental issues, such as environmentally responsible land management planning. | Whole year |
| Pure Science | Conduct studies on environmental issues, such as assessing water quality, soil analysis, power consumption or recycling. To better comprehend environmental patterns and forecasts, consider using mathematical models. Investigate the repercussions of environmental actions on the economy, such as doing cost-benefit analyses for environmentally friendly projects. | Half-yearly/ each program |
| Bio-Science | Study subjects include ecosystems, biodiversity, and the interconnectedness of all living things. | Whole year |
| Physical Education | Encourage students to develop an appreciation for the natural world by having them participate in outdoor sports and activities. Talk about the significance of physical activity for both | Whole year |

| | | |
|---|---|---|
| | one's own health and the health of the environment (for example, taking bike instead of the car). | |
| NSS | To enhance the amount of green cover and fight deforestation, organizing tree-planting events in local communities and educational institutions is important. To combat littering and to encourage a clean environment, it is important to organize routine clean-up efforts in public places like parks and beaches. To educate both students and members of the general public about environmental issues such as climate change, waste management, renewable energy, and conservation, workshops and seminars should be organized. It should be a priority to create opportunities for individuals to engage with the natural world and develop a sense of ownership over its preservation through participating in hikes and other outdoor activities. To raise awareness about environmental issues and motivate people to take action, you might use social media, posters, and booklets. | Whole year |



**Plantation Programmes**

**4.5.2. Student Engagement:** A culture of sustainability can be promoted among students by supporting student-led projects, creating environmental groups, and holding awareness events and workshops.

## 5. Green Campus:

### 5.1. Floral Diversity:

The following are some actions to take into account when setting up a plantation programme at your college:

-Organise a group of academics, employees, and students who are interested in managing the plantation programme. Assign roles and duties to make the execution go smoothly.

-Consult with local forestry professionals or environmental groups to discover native or adapted tree species that are well-suited to the climate, soil, and goal of the plantation programme. Research and choose suitable tree species.

-To obtain the necessary approvals or permits for planting trees on campus or in the neighborhood, check with the college administration or other appropriate authorities.

- Look into possible funding options, including grants, sponsorships, or collaborations with nearby companies or environmental organizations. This will aid in defraying the price of buying trees, equipment, and other required supplies.

- Establish the plantation event's date, time, and venue. Plan the delivery of the trees, tools, and equipment to the planting location. Make sure that safety precautions are in place, including appropriate instruction on planting methods and equipment use.

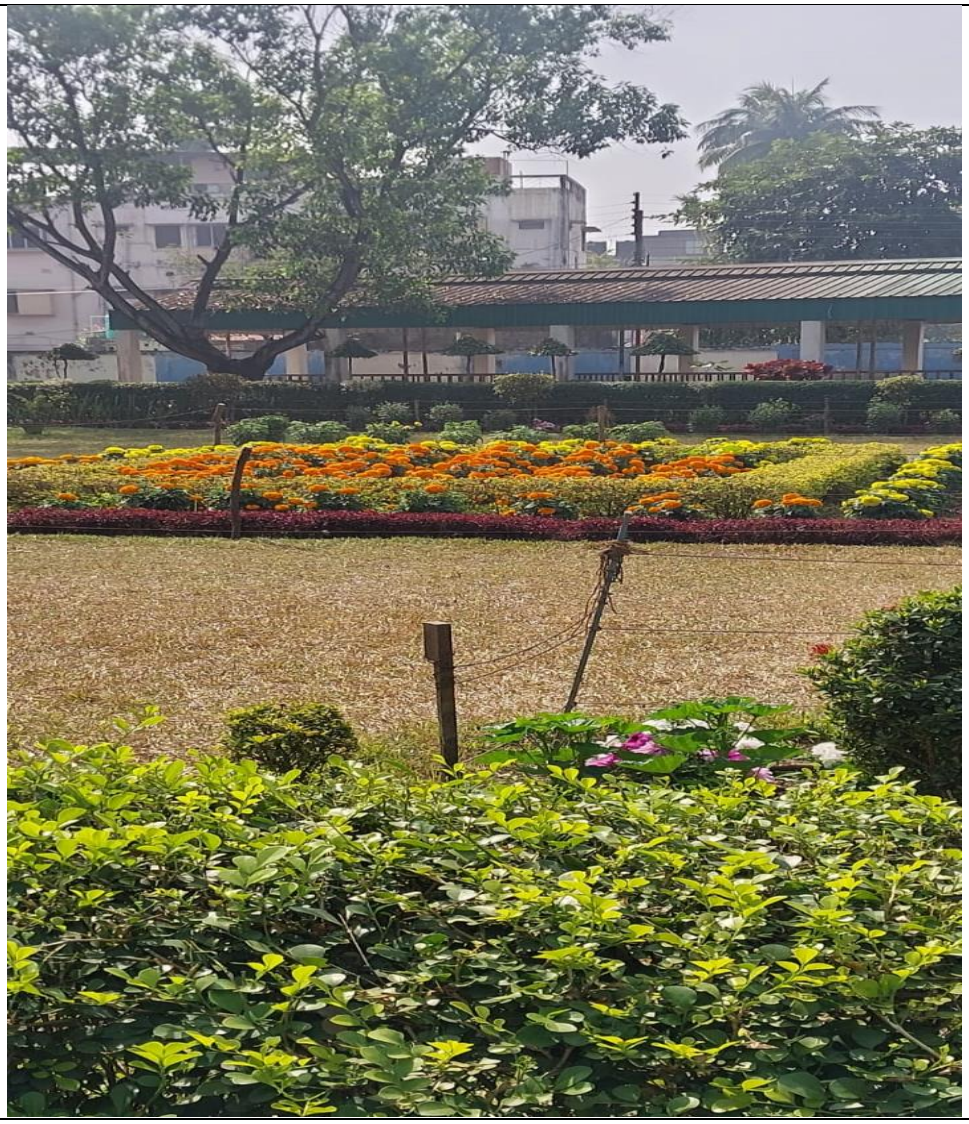
-Promote the planting programme within the campus community by using various communication channels, such as posters, social media, emails, and word-of-mouth, in order to raise awareness and find volunteers. Encourage everyone to volunteer, including alumni, faculty, staff, and students.

-Volunteers should be gathered at the planting site on the appointed planting day. Give them the equipment, instructions, and direction they need to plant trees correctly. Foster a sense of accomplishment and community pride while fostering teamwork.

-Stress the significance of taking care of the freshly planted trees. This could entail routine weeding, mulching, watering, and pest or disease inspection. To

guarantee the long-term well-being and survival of the trees, think about setting up a system for volunteers or staff members.

-After the plantation programme, evaluate the impact and accomplishment of the effort. Keep an eye on the trees' growth and survival rate. To determine areas for improvement and to organize upcoming plantation programmes, collect participant and stakeholder input.



**Floral Diversity of the Campus**

**A football surface with lush grassland improves the college campus's aesthetic beauty, making it more hospitable and alluring to students, faculty, and visitors.**

**Ponds play a crucial role in the campus' ability to maintain a balanced ecological system. They serve the local environment by providing a habitat for a variety of plants and animals, assisting in the reduction of erosion, and assisting in the replenishment of groundwater supplies.**

## 5.2. Faunal Diversity:

The study of faunal diversity can help raise awareness about the issues facing the environment as well as the relevance of conservation. It is possible that educational institutions that are home to a large number of different animal species may be more likely to implement ecologically friendly policies and methods of operation in order to protect both the campus environment and the people who live there.

**Birds Diversity:**

A robust and flourishing ecosystem can be inferred from the presence of a large number of distinct bird species within its population. Birds of many various species play a significant role in the preservation of ecological balance by performing a variety of tasks, some of the most important of which are the spreading of seeds, the management of insect populations, and the act of pollination. They provide a contribution to the overall variety of plant and animal life that may be found on the site.

- The Indian Pond Heron (*Ardeola grayii*), is a species of heron that is very available

-King fisher (*Alcedo atthis*): Very common

- The Common Myna (*Acridotheres tristis*), is a species of bird that lives in college premises and is famous for its ability to imitate human speech as well as other sounds.

-Oriental Magpie Robin (*Copsychus saularis*) – Very available at our college campus

-House Sparrow (*Passer domesticus*) – Very common

- Rose-ringed Parakeet (*Psittacula krameri*)- Rare

- Common Tailorbird (*Orthotomus sutorius*)-Very common

- Coppersmith Barbet (*Psilopogon haemacephalus*)-Very rare

**Butterfly:**

Seasonally found the following butterflyes-

Peacock Pansy (*Junonia almanac*), Plain Tiger (*Danaus chrysippus*), Common Albatrosses (*Appias albina*), Blue Mormon (*Papilio polymnestor*), Grey Pansy (*Junonia atlites*), Blue tiger (*Tirumala limniace*), Tailed Jay (*Graphium agamemnon*), Common Grass Yellow (*Eurema hecabe*), Common Mormon (*Papilio polytes*), Common Caster (*Ariadne merione*), Common Rose

(*Pachliopta aristolochiae*), Palm Fly (*Elymnias hypermnestra*) and Common Crow (*Euploea core*).

## Plantation of Wild type Medicinal plants:

On the grounds of our college, we planted not one but two different medicinal gardens. Every day, more and more wild medicinal plant kinds are becoming extinct as a direct result of human activity and pollution. Once we have determined the species of these plants, we will work to preserve them in our medicinal gardens by means of multiplication. Through the appropriate method, it is accessible to any and all interested parties or agencies. A medical garden is a specific location on the grounds of an educational institution that is devoted to the growth and maintenance of a large variety of different kinds of medicinal plants. medical gardens are often found on university campuses. Students, staff members, and researchers all have access to it as a resource for teaching and study, which makes it possible for them to investigate and learn about the many different qualities and applications that medicinal plants can have. The cultivation of a medicinal garden on a college campus has the potential to confer significant value and benefits on the surrounding academic community as well as on society.

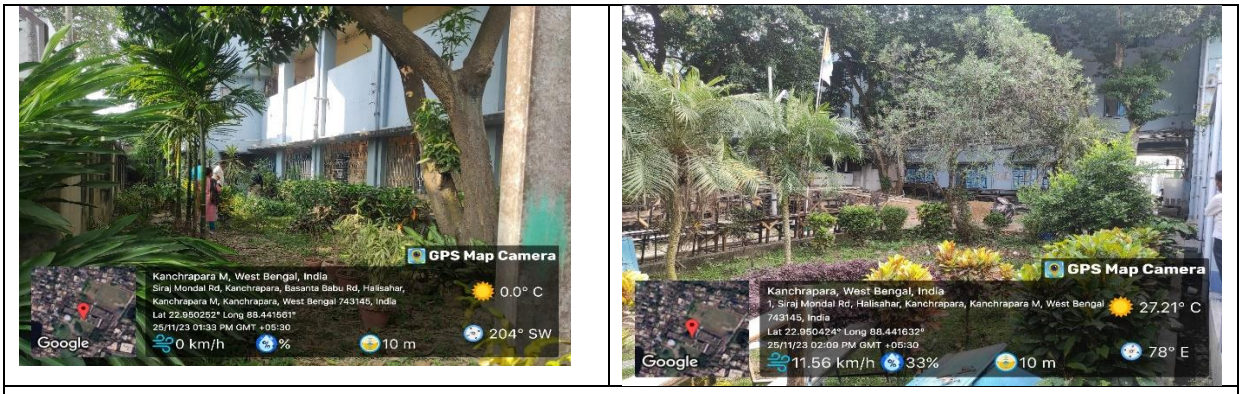



**Figure: Our medicinal garden (114 numbers of medicinal plants)**

**Title of the R&D Project:**
Development of a wild varieties medicinal plants garden and its management for conservation of Semi Urban development
**PI:** Mrs. Bhanumati Sarkar, Assistant Professor of Botany
**Total approved Budget:** RS. 680000/-
**First Sanctioned G. O. No.:** 254(sanc)-ST/P/S&T/1G-30/2018 Dated 25/2/2019
**Area:** Medicinal garden at college premises which coved about 7520 sq.ft +1320 sq.ft = Total 8840 sq. ft.

**Most Floral groups are-** *Ficus elastica* Roxb. ex Hornem., *Delonix regia* (Boj. ex Hook.) Raf., *Peltophorum pterocarpum*, *Peltophorum pterocarpum* (DC.) K.Heyne, *Lagerstroemia speciosa* (L.) Pers., *Samanea saman*

(Jacq.) Merr., *Swietenia mahagoni* (L.) Jacq., *Bauhinia purpurea* L., *Bauhinia purpurea* L., *Polyalthia lingifolia* (Sonn.) Thwaites, *Tectona grandis* L.f., Areca catechu L., *Terminalia arjuna* (Roxb)Wight & Arn, *Acacia auriculiformis* A.Cunn.ex.Benth, *Dalbergia sisoo* Roxb., *Ficus religiosa* L., *Psidium guajava* L., *Mangifera indica* L., *Syzygium cumini* (L.) Skeels, *Mimusops elengi* L., *Neolamarckia cadamba* (Roxb.) Bosser, B*ambusa ventricosa* Mc. Clure, *Syzygium samarangense* (Blume) Merr. & L.M.Perry, *Carissa carandas* L., *Citrus limetta* Risso, Z*iziphus mauritiana* Lam., *Tecoma stans* (L.) Juss. ex Kunth, *Nerium oleander* L., *Uraria picta* (Jacq.) Desv. ex DC., *Pterocarpus santalinus* Linn., *Terminalia chebula* Retz., *Hibiscus rosa-sinensis, Thuja occidentalis* L., *Roystonea regia* and *Euphorbia milii* Des Moul.

**7. Conclusion:** According to the results of a recent green audit, the Kachrapara College has identified a few sites on campus that may use some work to further sustainability goals. Implementing the offered solutions has the potential to result in a number of positive environmental outcomes, including decreased energy consumption, improved waste management, enhanced water use efficiency, expanded sustainable transportation options, and heightened environmental consciousness. By putting these alterations into effect, Kachrapara College will be able to demonstrate to its pupils how to responsibly care for the environment and make a contribution towards a more sustainable future.