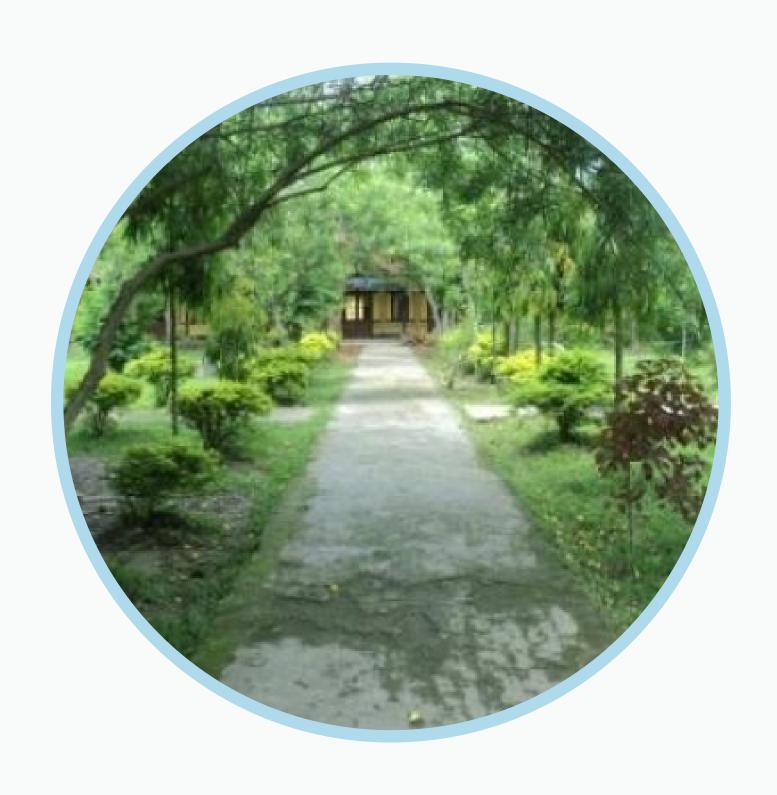




# ENVIRONMENT AUDIT 2022-23





# REPORT ON ENVIRONMENT AUDIT

Prepared by Green Audit Team Gargaon College, Simaluguri



#### **Environment Audit team**

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This is to certify that the Environment Audit Report of Gargaon College has been prepared based on the findings of green and environmental audit conducted by the college based on the tour of the college, review of the records and interview of faculty, non-teaching staff and the students.

The Environment Audit Report also presents the green initiatives followed and taken up by the college based on recommendations for better environmental sustainability.

(Dr. Sabyasachi Mahanta)

Principal

Gargaon College

Principal

Gargaon College

Simaluguri, Sivasagar (Assam)

(Dr. Dimbeswar Das)

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Sl no	Points covered
1.	Introduction
2.	About the College
3.	Objectives of the Study
4.	Methodology
5.	Human Health and safety Management
6.	Soil quality management
7.	Air quality management
8.	Water Management and Usage
9.	Waste Management
10.	Noise Management
11.	Conclusion
12.	Annexure



Sl. no.	Areas	Observations
1.	Water Usage and Conservation	<ul> <li>Water reservoirs for rainwater harvesting are present (pond)</li> <li>Ground level water recharging unit under the guidance of Public Health Department, Nazira is under construction.</li> <li>Rainwater Harvesting Unit is present</li> </ul>
2.	Soil quality management	<ul> <li>Organic manure like leaf compost and vermicompost are used to replace chemical fertilizers.</li> <li>Improve fertility of the soil by plantation.</li> <li>Avoid littering by preventing waste disposal</li> </ul>
3.	Air quality management	<ul> <li>College campus is filled with several numbers of plants to enhance the air quality.</li> </ul>
4.	Solid Waste Management	<ul> <li>Wet and dry dustbins are placed in corridors, in front of the classrooms.</li> <li>Composting pits are created for biodegradable waste like leaves, and food waste.</li> <li>Vermi-composting units are created to convert organic waste (food waste).</li> </ul>
5.	Plastic Free campus	<ul> <li>College has strict regulations towards ban on single-use plastic.</li> <li>College is taking initiatives by displaying boards to create awareness.</li> <li>College canteen uses reusable utensils to reduce plastic use.</li> </ul>
6.	E-Waste management	• The E-waste are utilised as part of Add on course on Computer Hardware Networking
7.	Human safety and Management	<ul> <li>Sanitary napkin incinerators are present.</li> <li>Fire extinguishers are installed in the campus.</li> <li>Use of tobacco and smoking is completely banned inside the campus</li> </ul>
8.	Energy usage and conservation	<ul> <li>90% of the conventional bulbs are replaced by LED bulbs to reduce energy consumption.</li> <li>Installation of rooftop solar panels of 300 W.</li> <li>Solar Street lights are present inside the campus</li> </ul>



#### INTRODUCTION

The environmental audit is geared towards evaluating both on-campus and off-campus environmental practices that influence the creation of an eco-friendly atmosphere. This systematic process involves identifying, quantifying, recording, reporting, and analyzing various components of the College environment. The audit was initiated to scrutinize activities within the institution that may pose a threat to the health of inhabitants and the environment. The goal is to provide guidance on enhancing the environmental structure, considering factors that have influenced the implementation of the environmental audit.

According to the International Chambers of Commerce (ICC) in its 1989 publication on Environmental Auditing, it is defined as a management tool that entails a systematic, documented, periodic, and objective evaluation of how well an organization's environmental management and equipment are performing. The primary objective is to safeguard the environment and natural resources in the course of its operations/projects.

Environment auditing, therefore, is the process of identifying and assessing whether an institution's practices align with eco-friendly and sustainable principles. While historically, we have been proficient users of natural resources, there is a growing concern over habitual excess use, especially in common areas such as water. It is now imperative to evaluate resource management practices carefully. The environmental audit serves as a regulatory mechanism for such practices, offering an efficient approach to natural resource utilization. In the current context of climate change and resource depletion, there is a pressing need to scrutinize existing processes and transition them into environmentally friendly practices. The environmental audit provides a structured approach to achieve this objective, fostering increased awareness among the college community towards environmental responsibility.

Green auditing, environmental auditing, and energy auditing encompass the systematic identification, quantification, recording, reporting, and analysis of both environmental and energy-related components. This report presents the findings of an environmental audit conducted at Gargaon College, focusing on assessing and evaluating the institution's environmental practices and sustainability initiatives. The audit serves as a crucial step in comprehending the college's environmental impact and identifying areas for improvement.



#### ABOUT THE COLLEGE

Situated at a location steeped in historical and cultural significance, Gargaon College stands out not only for its picturesque setting but also for its robust infrastructure and diverse academic offerings. Boasting smart classrooms, a cutting-edge digital library, and academic conference rooms, the college provides a conducive environment for learning. Beyond academics, it caters to the holistic development of students with facilities like a gymnasium, indoor stadium, and a sports ground, fostering a vibrant and spirited youth culture. In addition to conventional courses, the college offers postgraduate programs in distance mode and a range of competence-based courses, enabling students to refine their talents and acquire employability skills.

The institution maintains an impressive student-teacher ratio, facilitating personalized attention and guidance for individual students. This approach has yielded remarkable results over the years, with students consistently achieving outstanding exam results. A substantial number of graduates pursue higher education and professional courses annually, showcasing the college's commitment to nurturing successful careers.

Gargaon College's historical backdrop adds another layer to its significance, having served as the capital of the Ahom Kingdom from 1539 A.D. to 1695 A.D. The Kareng Ghar, a seven-storied Royal Palace, remains a testament to this rich history. The college campus, enveloped in lush greenery, not only provides an idyllic setting but also serves as a haven for biodiversity. A total of 33 bird species, 32 fish varieties, and over two hundred medicinal plants have been identified on the campus. The college's commitment to sustainability is evident through initiatives such as an organic garden and a vermicompost project, promoting eco-friendly agricultural practices.

The expansive green campus of Gargaon College is not merely a backdrop but a vital component of the institution's identity. It serves as an oasis of tranquility and inspiration, fostering an environment conducive to learning and personal growth. The meticulously maintained greenery, including lush lawns, vibrant flower beds, and shaded walkways, creates a soothing atmosphere that encourages contemplation and relaxation.

Moreover, the college's commitment to environmental stewardship extends beyond its academic offerings. The campus is home to diverse flora and fauna, with students actively participating in initiatives such as tree plantation drives and biodiversity awareness campaigns. The college's dedication to sustainability is exemplified by the presence of solar panels, rainwater harvesting systems, and eco-friendly waste management practices.

The verdant surroundings not only enhance the aesthetic appeal of the college but also contribute to its ecological diversity. The campus has become a haven for numerous bird species, butterflies, and small mammals, creating a harmonious coexistence between nature and academia. This unique blend of a green haven and academic excellence underscores Gargaon College's commitment to holistic education and environmental responsibility, making it a symbol of inspiration for future generations.

This unique blend of historical significance, academic excellence, and environmental consciousness positions Gargaon College as a distinguished institution dedicated to shaping well-rounded individuals and contributing to the preservation of cultural and ecological heritage.



#### **OBJECTIVES**

## GOALS

- 1. Identification and documentation of environmental practices followed by the college.
- 2. Identify strengths and weaknesses in environmental practices.
- 3. Assess facility of different types of waste management.
- 4. Increase environmental awareness throughout campus
- 5. Identify and assess environmental risk.
- 6. Motivates staff for optimized sustainable use of available resources.
- 7. The long-term goal of the environmental audit program is to collect baseline data on environmental parameters and resolve environmental issues.

# OBJECTIVES

- 1. To examine the current practices, which can impact the environment such as resource utilization, waste management, etc.
- 2. To identify and analyze significant environmental issues.
- 3. Set up goals, vision, and mission for environmental practices on campus.
- 4. Establish and implement Environment Management in various departments.
- 5. Continuous assessment for betterment in performance in the environment.

## SCOPE

The broad scopes and benefits of the environment-auditing system would be

- 1. Environmental education through a systematic environmental management approach
- 2. Improving environmental standards
- 3. Benchmarking for environmental protection initiatives
- 4. Sustainable use of natural resources on campus.
- 5. Financial savings through a reduction in resource use
- 6. Curriculum enrichment through practical experience
- 7. Development of ownership, personal and social responsibility for the College campus and its environment
- 8. Developing an environmental ethic and value systems in young people



#### **METHODOLOGY**

The approach for doing an environmental audit comprised several instruments such as data gathering, physical inspection of the campus, observation and study of paperwork, interviewing key people, data analysis, measurements, and suggestions. The audit was carried out through a combination of on-site visits, interviews with key personnel, and a review of relevant documents, policies, and practices. To describe the current state of environmental management on campus, the assessment focused on key areas such as:

- Water Management and Usage
- Soil Quality Management
- Air Quality Management
- Biodiversity conservation
- Waste Management
- Human Health and Safety Management
- Noise Pollution Management















#### Human Health and Safety Management

This metric considers various parameters to enhance the health and safety of all individuals. The initial step involves conducting awareness programs within the college premises. Prioritizing the safety and reproductive health of women, fully functional sanitary napkin dispensers and used sanitary napkin incinerators are strategically placed in the girls' common room and ladies' waiting room.

In adherence to stringent fire safety measures, fire-extinguishing mechanisms, including strategically located fire extinguishers, are installed across the campus. Additionally, the campus strictly prohibits smoking, selling, and the use of tobacco and tobacco-infused products within a 300-meter radius around the institution.

Further initiatives for promoting health and hygiene include well-ventilated rooms, encompassing offices, classrooms, laboratories, and corridors. These spaces are designed with wide doors, large windows, and high ceilings to facilitate ample sunlight. Air conditioners are installed in offices and computer laboratories, while exhaust fans are provided in washrooms, the canteen's kitchen area, and chemistry laboratories. These measures collectively contribute to creating a safer and healthier environment within the campus premises.

Special programs are organised by specific departments as a proactive step towards the health and wellbeing of its students

Programme		
Yoga Day		
Health Check up		
Cleanliness drive		
Parent-Teacher meeting of each dept		
World environment day		
National Days		
"Best of Waste" Training		







#### Soil Quality Management

This indicator takes into account measures to improve soil fertility so as to have better quality nutrients for the plants in the campus. With careful consideration, organic manure such as compost of leaves, vermi-compost has replaced the use of chemical fertilisers all together. Planned and better plantation leads to improved fertility of the soil and to achieve these stakeholders of the college avoid littering by cost and time efficient waste disposal. More greenery has been added consistently in order to improve ground water resource.

To elaborate upon the ways, the waste management point 3.5 provides an elaborate insight into management of different types of wastes that would otherwise deteriorate soil quality.







Organic Farming at college







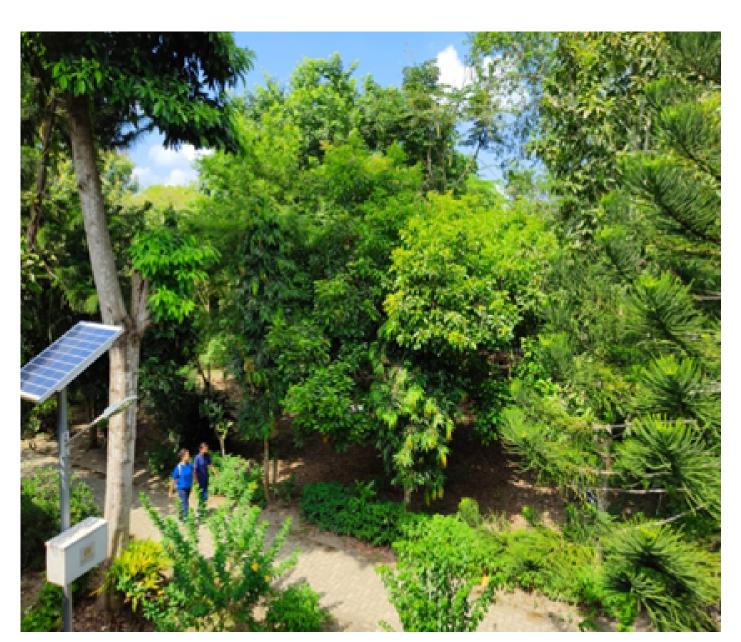
Plantation drive by students & teachers to conserve soil

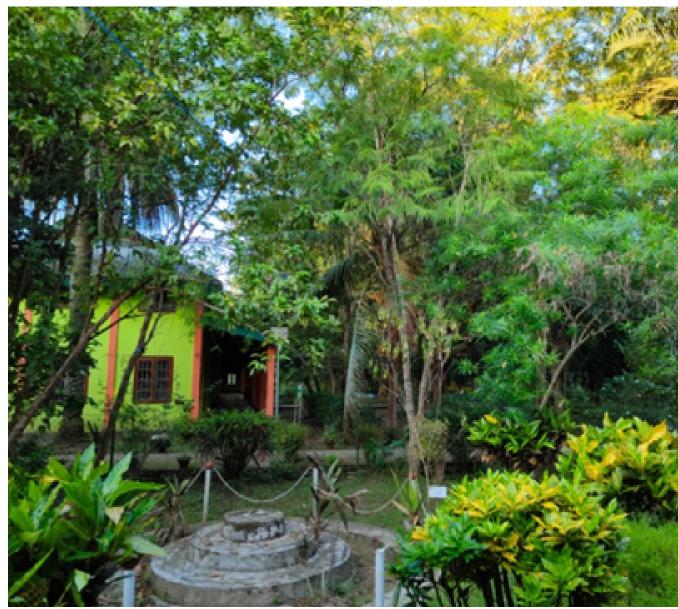
Plastic Bottle Bank for prevention of soil pollution and vermi-compost unit for soil nutrient enrichment



#### **Air Quality Management**

This indicator includes the management, and initiatives taken by the college to clean and enhance the air quality within campus. All the activities and actions undertaken help protect human health and the environment from the harmful effects of air pollution. The college campus is filled with enormous numbers of plants to enhance the air quality. Different kinds of trees, shrubs, and herbs present inside the campus play a very major role in reducing carbon footprint.





To effectively manage air quality at Gargaon College, several measures have been implemented

- 1. Air Quality Assessment is conducted to have a comprehensive air quality assessment to identify the sources of air pollution within and around the college campus. This assessment should include monitoring of pollutants such as particulate matter (PM2.5, PM10), nitrogen oxides (NOx), sulfur dioxide (SO2), volatile organic compounds (VOCs), and others
- 2. Implementation of Green Practices to promote sustainable practices within the college campus. We also encourage the use of energy-efficient appliances.
- 3. Alternative Transportation is encouraged. Students, faculty, and staff are encouraged to use alternative modes of transportation, such as cycling, walking, or carpooling, to reduce vehicle emissions. The college has also taken the initiative of "No Vehicle Day" once a year. A strict regulation was followed by all faculty members and workers of the college to bring no car on that day to the college campus.
- 4. Indoor Air Quality is enhanced by regular maintenance of ventilation systems and ensuring proper air circulation.
- 5. Raising awareness, collaboration with local authorities, and encouragement towards research initiatives focused on air quality management along with regular monitoring and evaluation is maintained.

Air quality management is an ongoing process that requires continuous efforts and involvement from all stakeholders. By implementing these measures, Gargaon College can contribute to a healthier and cleaner environment for the college community and the surrounding areas.



#### Water Management and Usage

Water usage, water sources, irrigation, appliances, and fixtures are all addressed within this indicator. Water audit is a non-onsite study and evaluation used to identify water usage so as to improve the efficiency with which water is used. Water audit is done during February-March period when usage of water is at the peak. The main source of water is ground water. It must be noted that water supplied by the government is also utilised within the campus and the hostels. Other than that, rain water collecting pit or pond is present in order to recharge ground water. Water is used for drinking purpose, toilets and gardening. There is no loss of water by any leakage or overflow from overhead tanks. Water reservoirs for rain water harvesting is present and are well maintained. To ensure safe drinking water for all, several water purifying units are present – in most departments, in common areas as well as the canteen, available to all. Gardens are watered by using drip/sprinkler irrigation system to minimize water use. Under the guidance of Public Health Department, Nazira ground level water recharging unit is under construction.

Vegetable garden 1 acre	200 L/day during winter 800 L/day during summer
Drinking (No of students, approx. fig)	1000 L/day



Rain water harvesting unit



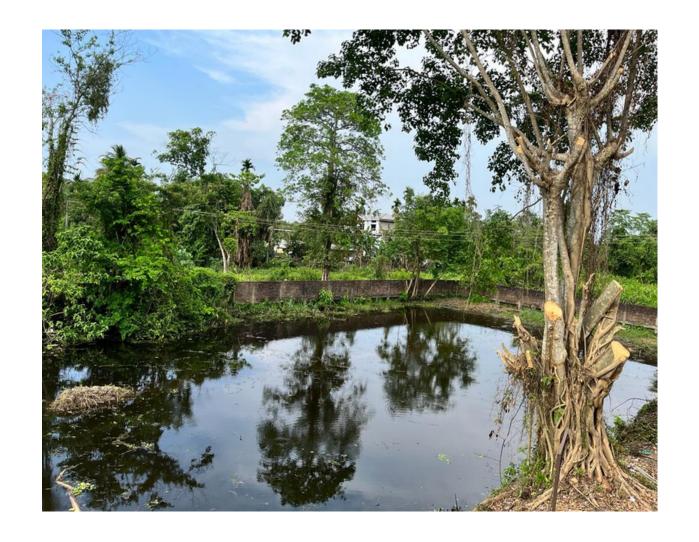
Rain water harvesting for recharging of ground water



#### Maintenance and Cleaning of the Water body

The water body at the Gargaon college is cleaned on a regular basis to take care of the aquatic life and the area ecosystem around it. The water body is maintained periodically so as to provide sustainable, continuous, economically safe, and adequate water to the campus. Another objective of the maintenance is to provide diseases free environment







#### Steps undertaken

- 1.A thorough assessment of the water body is done to understand the extent of the pollution and to identify the specific areas that need attention. This involves measuring water quality parameters, examining the surrounding area, and documenting any visible pollutants
- 2.A planned regular clean-up is carried out where volunteers consisting of students, faculty members, staff and local people come together to remove trash and debris from the water body and its surroundings. The college provides necessary utilities such as equipment, buckets, gloves when required, trash bags, and any other necessary equipment to ensure everyone's safety
- 3. Appropriate departments are consulted to ensure compliance with regulations.

#### For the long run

- 1. Awareness campaigns to educate the college community about the importance of clean water bodies and the impact of pollution. by utilizing various communication channels such as posters, social media, and campus events to spread the message and encourage participation.
- 2. Implementation of preventive measures to reduce pollution and maintain the cleanliness of the water body is equally emphasized.
- 3.To monitor and evaluate the progress is necessary to continuously monitor the water body's condition to track improvements and evaluate the effectiveness of cleaning initiatives.

Cleaning a water body is an ongoing process, and it requires sustained efforts to ensure long-term cleanliness and protection. By involving the college community and raising awareness, we can make a significant impact on preserving the water body for future generations.





#### Waste Management

This indicator looks at the production and disposal of various wastes such as paper, food, plastic, construction, glass, dust, and so on, as well as recycling. Furthermore, solid trash frequently contains squandered material resources that may be put to greater use through recycling, repair, and reuse. The formation and management of solid waste is a burning topic. Unscientific waste disposal can endanger everyone. Gargaon College fraternity is conscious about the amount, kind, and present handling of waste created on campus and how to reuse and properly dispose them.

The campus generates a substantial amount of solid trash through tree droppings. Leaf composting pits are present inside the campus to convert dried leaves into manure. Students are also encouraged to participate in this regard. Separate dustbins for biodegradable and plastic garbage are provided at the point of collection. In all departments, single-sided old sheets are reused for writing and printing, and both side printing is encouraged. Some selected old newspapers are preserved for further research, issue analysis, etc. and rest are handed over to local vendors and old magazines are archived. The department, office, garden, and other areas create very little plastic garbage (0.1 kg per day), which is not classified at the moment of generation nor sent for recycling. Metal and timber trash are collected and sent to licenced scrap dealers for further processing. The existing plastic waste and E-waste are disposed at the municipal collection centre. The municipal corporation collects solid garbage and disposes of it according to its procedures. Installation of a sanitary napkin incinerator at ladies waiting room and in the girl's common room to reduce plastic waste is also a good and hygienic practice.

We want to reduce the total quantity of garbage generated by college staff offices and make use of all municipal and private recycling facilities, such as glass, cans, white, coloured, and brown paper, plastic bottles, batteries, print cartridges, cardboard, and furniture. Biodegradable garbage, such as leaves and food waste, is composted in pits, while organic waste (food waste) is converted into organic manure in vermi-composting units.









#### Solid Waste Management

#### a) Segregation of waste

Segregation of waste begins in the classroom. Each classroom dust bins and the common areas have two dust bins, one for biodegradable materials and the other for non-biodegradable materials. Wet and dry dustbins are placed in corridors, in front of the classrooms.

#### b) Plastic free campus

Gargaon College has strict regulations towards plastic use and a complete ban on single-use plastics. Creating awareness of the environment is one of the significant mandates. It is done by putting up display boards as well as awareness programs. In practice, besides banning single-use plastic, the college canteen uses reusable utensils as well as paper cups and plates to become environmentally more friendly.

#### c) Waste to wealth initiatives

Gargaon College conducts several student-centric programmes throughout the year that encourages students to prepare different types of items, particularly decorative items that are made individually and show-cased amongst the fraternity of the college to infuse the idea that plastic is non-biodegradable and can and should be reused instead of being thrown to reduce the soil quality and affect plants and animal life.











#### E-Waste Management

Electronic components contain cadmium, lead, mercury, and polychlorinated biphenyls (PCBs), which can harm human health and the environment. The amount of e-waste created on campus is quite little. E-waste and damaged items from the computer lab are appropriately stored. As a measure of good practice, Gargaon College has an Add-on course on computer hardware networking for utilisation and re-utilisation of e-wastes. In order to dispose of E-waste in a scientific way, the institution has opted to contact a vendor to collect E-waste from the college to be taken to disposal facility.

#### Noise Pollution Management

This indicator includes the management, control and reduce the noise pollution within the campus. Regular maintenance of vehicles by preventing pressure horns and plantation is done to keep the campus noise free. By controlling noise, we can control negative health effects that noise pollution has on everyone.



#### Youtube Links to various activities



e-rickshaw at college campus



<u>Celebration of world Ocean day</u>



Fish release and rearing at college pond



Agaru Plantation at college Campus



<u>Plantation drive</u>



Solar lights at the campus



<u>Campus ecology of the college</u>



#### Youtube Links to various activities

Organic Garden of the college



Workshop on Vermicompost



<u>Vermicompost Project</u>



<u>vermicompost i roject</u>



Making of and using leaf-compost



Observance of World Wetland Day



Fish production at college pond



World Ozone Day Celebration



Banana Leaf Plate preparation



Test reports of various determinant in determination the ecological health of the college campus

