

SUSTAINABLE DEVELOPMENT GOALS



14. LIFE BELOW WATER

14.2 Supporting aquatic ecosystems through education

14.2.1 Fresh-water ecosystems (community outreach)

Rain Water Harvesting Awareness Program – 6th March 2024

The Chennai Institute of Technology organized a Rain Water Harvesting Awareness Program at Puthuper in collaboration with Root Lamp Trust. The program was designed to educate the local community about the importance of rainwater harvesting as a sustainable approach to water conservation. Participants learned how rainwater harvesting helps recharge groundwater and ensures long-term water availability. Practical techniques for setting up and maintaining rainwater collection systems were demonstrated. The event reflected the institution's commitment to promoting environmental sustainability and empowering communities with knowledge for better water resource management.



Awareness on Water Management – 23rd May 2024

Water Management event was conducted by Chennai Institute of Technology at Puthuper, led by Dr. Saivaraj, an expert in sustainable water management. The session aimed to provide hands-on learning about rainwater harvesting methods and their role in conserving water resources. The demonstration showcased innovative systems for collecting and storing rainwater and explained

their benefits in reducing dependency on municipal water supplies. The event encouraged local residents to adopt these practices in their homes and communities, promoting responsible and sustainable use of water.



Water Audit Program – 27th May 2024

The Water Audit Program organized by Chennai Institute of Technology at Puthuper focused on assessing current water usage and identifying opportunities for conservation. The program also emphasized the importance of water audits as a tool for sustainable management of resources in institutions and communities. Through interactive discussions and practical exercises, the event increased awareness of the need for efficient water use and inspired participants to adopt conservation practices in their daily activities.

As part of the initiative, the audit team visited and assessed water usage in all village households, identifying areas of excessive consumption and suggesting practical solutions to reduce wastage. Villagers were educated on effective water management practices, including methods to reuse greywater and maintain water storage systems efficiently.



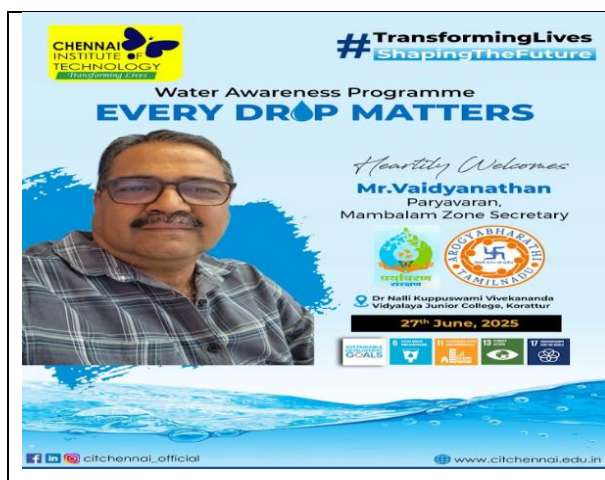
Water Quality Testing Program – 14th February 2024

Chennai Institute of Technology conducted a Water Quality Testing Program at Amerambedu Village under the guidance of Dr. Saivaraj. The objective was to assess the safety and cleanliness of local water sources. Water samples were collected from the village tank and households and tested for quality and purity. The program educated villagers about water contamination, safe drinking water practices, and the health impacts of poor water quality. This initiative helped the community understand how maintaining clean water sources contributes to better health and sustainable living. Awareness materials were distributed to help families adopt hygienic storage and handling practices for drinking water. Overall, the program strengthened community capacity for proactive water management and encouraged collective responsibility in preserving local water resources.



Every Drop Matters Awareness Event – 27th June 2023

The event “Every Drop Matters” was conducted by Chennai Institute of Technology in collaboration with Paryavaran and Arogyabharathi Tamil Nadu. Held at Dr. Nalli Kuppuswami Vivekananda Vidyalaya Junior College, Korattur, the program featured interactive sessions and group activities to raise awareness about water conservation among students. The resource person, Mr. Vaidyanathan from Paryavaran, shared valuable insights on effective water-saving methods and environmental responsibility. The event encouraged young learners to take an active role in promoting sustainable water management practices within their schools and communities.



Water Art Competition – 5th December 2023

The Water Art Competition organized by Chennai Institute of Technology at SMT. Mohini Saraogi Vivekananda Vidyalaya inspired students to express their understanding of water conservation through art. Over 200 school students participated, creating artworks that depicted the importance of clean water and sustainable management. The competition helped raise environmental awareness and foster creativity among young minds. Dr. D. Jayabalakrishnan from the Mechanical Engineering Department interacted with participants and highlighted the importance of water preservation. The event concluded with certificate distribution and appreciation for the winners, promoting awareness through creativity.





14.3 Supporting aquatic ecosystems through action

Beach Cleanup Drive

The Chennai Institute of Technology, in collaboration with Bisleri – Bottles for Change, organized a Beach Cleanup Drive at Elliot's Beach, Chennai. The initiative aimed to promote ocean conservation and spread awareness about the importance of maintaining clean and sustainable marine ecosystems. Students, faculty members, and volunteers actively participated in removing plastic waste, bottles, and other non-biodegradable materials from the shoreline. The drive not only enhanced the cleanliness of the coastal environment but also encouraged responsible waste disposal and recycling habits among participants and the local community.



Clean Lake, Green Future

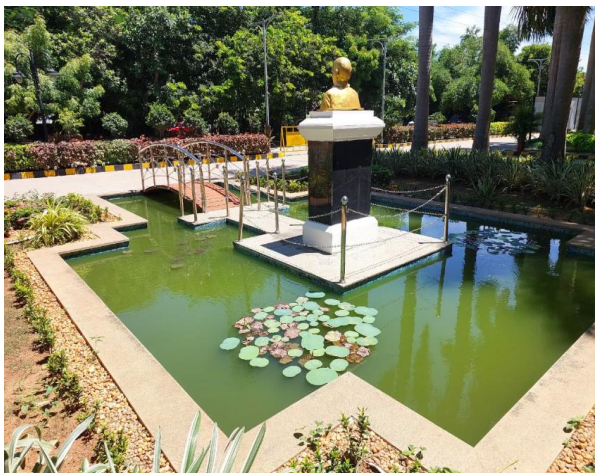
The Chennai Institute of Technology organized the event “Clean Lake, Green Future” at Chembarambakkam Lake, in collaboration with Bisleri’s Bottles for Change and Arogyabharathi Tamil Nadu. The program aimed to promote the conservation and sustainable management of freshwater ecosystems through active community participation. Volunteers, students, and faculty members joined hands to clean the lake surroundings, remove plastic waste, and raise awareness

about the importance of preserving water bodies. The event emphasized the need to protect natural lakes and promote responsible waste disposal practices to maintain ecological balance.



14.3.3 Maintain ecosystems and their biodiversity (direct work)

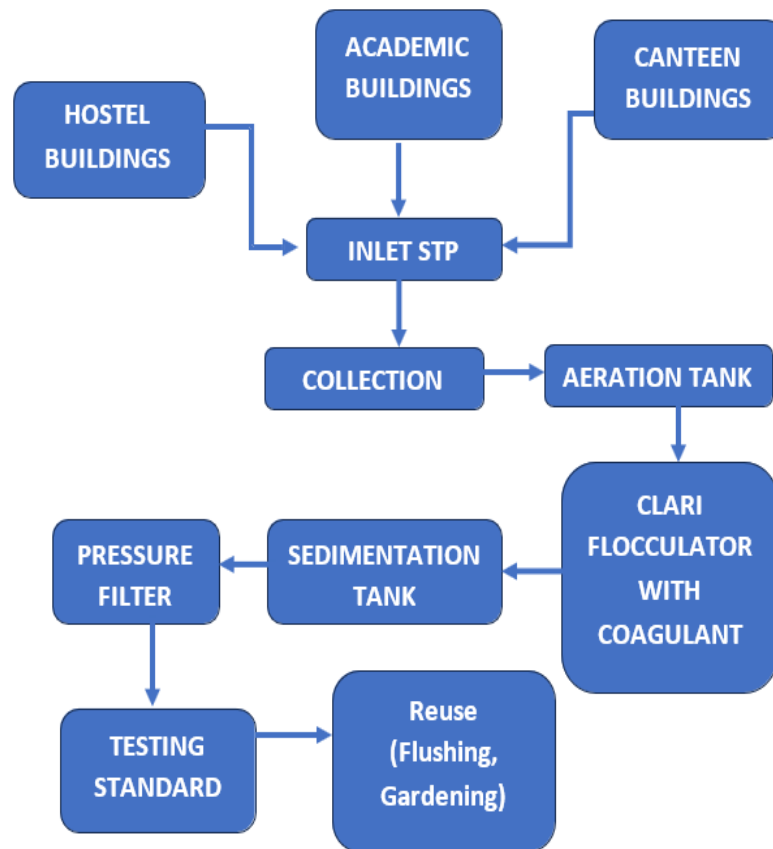
The Chennai Institute of Technology has established a Fish Conservation Area within its campus to protect and sustain aquatic biodiversity. This initiative supports the preservation of native fish species and promotes a balanced aquatic ecosystem. Through regular monitoring and sustainable management practices, the institute ensures the long-term conservation of aquatic life and contributes to maintaining ecosystem health.



14.4 Water sensitive waste disposal

Promote Wastewater Reuse and Recycling

Recycle treated wastewater for campus needs, such as landscaping, toilet flushing, and cooling systems, to reduce freshwater consumption and wastewater discharge.



Flow Chart - Process of Collection, Treatment and Reuse

Wastewater generated from the hostel buildings, academic buildings, and canteen facilities is conveyed to the Inlet Sewage Treatment Plant (STP). The Chennai Institute of Technology is mindful of the need to conserve natural resources and water for the safety of the environment. The campus water treatment plant comprises one unit with a capacity of 125 KLD and another one unit with a capacity of 500 KLD.

Initially, excess water is stored in the storage tank and then transferred to the aeration tank. After the aeration process, a coagulant is added to promote flocculation, and the water is directed to the sedimentation tank. Following sedimentation, the water is pressure-filtered and sent to the distribution tank. The treated water is then reused for gardening and plant irrigation across the campus.

The Institution is deeply committed to sustainability and environmental conservation, and one of its key initiatives in this regard is the Water Recycling Program. This program aims to reduce water consumption, minimize waste, and promote the efficient use of water resources throughout the campus.

The wastewater treatment process involves several stages to remove impurities and improve water quality:

- **Preliminary Treatment:** Screening, grit removal, and flow equalization are used to remove large solids and debris, ensuring stable wastewater flow.
- **Primary Treatment:** Sedimentation and removal of floating materials eliminate a significant portion of solids and organic matter, though dissolved particles remain.
- **Secondary Treatment:** Biological processes such as oxidation ponds, trickling filters, and the activated sludge process reduce Biochemical Oxygen Demand (BOD) by 85–95%, breaking down organic materials.
- **Tertiary (Advanced) Treatment:** Further improves water quality through filtration, chemical coagulation, nutrient removal (phosphorus and nitrogen), and disinfection using chlorine, UV radiation, or ozone to remove any remaining pathogens.

Through this systematic process, the Institution effectively reuses treated wastewater and ensures sustainable water management within the campus.





The Chennai Institute of Technology follows strict water quality standards and discharge guidelines to protect local ecosystems and human health. The campus operates a Sewage Treatment Plant (STP) to treat wastewater before safe discharge or reuse, ensuring compliance with environmental norms. Additionally, a Reverse Osmosis (RO) system is maintained to provide purified water and minimize contaminants. Regular monitoring and quality checks uphold the institute's commitment to sustainable water management and environmental protection.



14.4.2 Action plan to reducing plastic waste

1. Regularly conducted awareness programs regarding 'No Single Use Plastics' in collaboration with the Bottles for Change team.
2. We conducted a 'Plastic-Free World' awareness program on campus and in local schools.
3. An awareness campaign titled 'Say No to Single-Use Plastic' was conducted on campus and in nearby villages.
4. Take small steps like reducing single-use plastic and using digital resources to create a big impact on our planet.
5. Labels are used to instruct to avoid plastic.
6. In all cafeterias and messes, only stainless steel or glass tumblers are used, completely eliminating the use of plastic cups.



Awareness Banner



Use of Tumbler



Awareness Program

Preventing water system pollution

The Chennai Institute of Technology implements a range of preventive measures to ensure that polluted water does not enter the clean water system. The Institution follows systematic procedures, regular maintenance practices, and adopts sustainable treatment technologies to prevent water contamination, even during accidents or incidents.

Proper Water and Wastewater Network Design

The Institute's plumbing system is carefully designed to ensure safe and efficient water flow. Water collected from borewells is transported to treatment and distribution units through pipelines installed at an appropriate gradient to avoid backflow or contamination. Separate pipelines are provided for clean water supply and for sewage or wastewater collection. To prevent any accidental mixing, the pipelines are color-coded for easy identification. Manholes are also provided at regular intervals to allow for proper inspection and maintenance of the system.



Regular Inspection and Maintenance

The entire pipeline system, including valves and joints, is inspected periodically to detect leaks, damage, or blockages. In case of accidental pipe breakage, immediate repair and replacement work is carried out. Valves installed in the sewer network are tested for proper function, and preventive maintenance is performed routinely to maintain safe operations.



Safe Water Storage and Distribution

To prevent any chance of contamination, clean water is stored in rooftop tanks, while wastewater is collected and stored in underground tanks. This separation helps avoid any risk of cross-contamination. The pipelines are also installed with proper gradients to ensure smooth water flow and to prevent backflow between clean and wastewater systems.



Clean Water Tank



Waste Water Tank

RO System Safety Measures

The Reverse Osmosis (RO) systems are protected with polycarbonate housings and designed with adequate clearance for maintenance. This ensures safe operation and minimizes risks of contamination during maintenance or repair.



In-house Safety for RO System



RO System Covered by Polycarbonate Housing



System provided with Adequate clearance



System provided with Ease maintenance

Water sample Tested for Standard (pH)

Chennai Institute of Technology prioritizes environmental sustainability by actively monitoring water quality to control pollution within our campus. The digital pH meter provides precise measurements of the water's acidity or alkalinity, which is critical in assessing the overall water quality. By regularly checking these parameters, we can swiftly identify any anomalies or signs of pollution, allowing us to take preventive measures.

