SRI KRISHNA COLLEGE OF ENGINEERING AND TECHNOLOGY
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Kuniamuthur, Coimbatore – 641008
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17.3.6 – REPORT OF SDG 6 - CLEAN WATER AND SANITATION



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SDG 6 – CLEAN WATER AND SANITATION



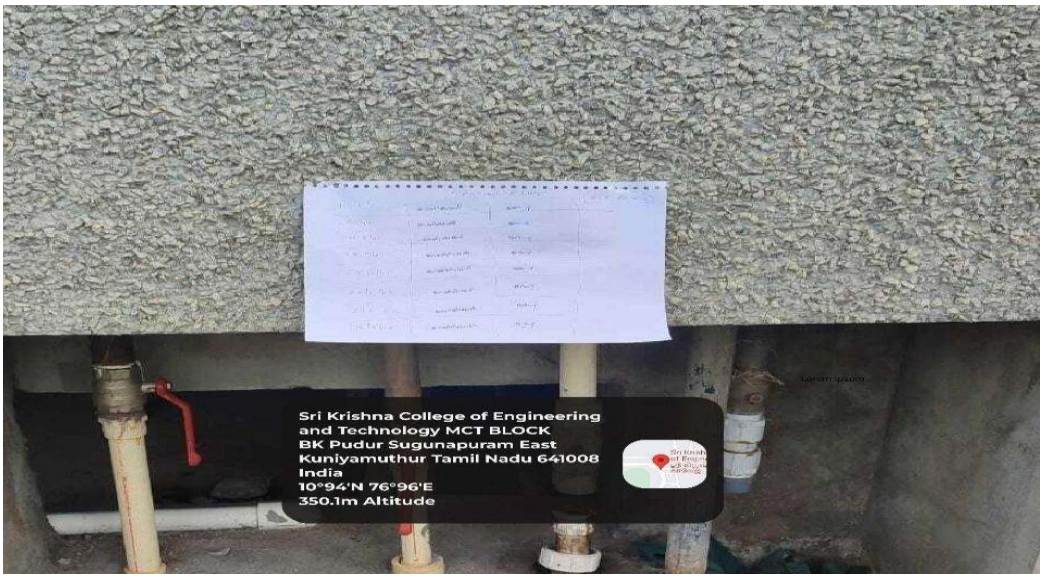
CLEAN WATER AND SANITATION

SDG 6: Its main goal is to guarantee universal access to sustainable water and sanitation management. In order to improve health, promote economic growth, and accomplish other SDGs, this objective highlights how crucial access to adequate water, sanitation, and hygiene (WASH) is. Preventing waterborne illnesses, lowering child mortality, and enhancing overall health outcomes all depend on having access to clean water and sanitary facilities. Enhancing access to clean water relieves the burden of getting water, which is frequently placed on women and girls, giving them more time for pursuits like schooling.An essential component of business, energy generation, and agriculture is water. Maintaining economic growth requires effective water utilization and good sanitation.Numerous other SDGs, such as eradicating poverty (SDG 1), promoting good health (SDG 3), promoting gender equality (SDG 5), and promoting sustainable consumption and production (SDG 12), are interconnected with clean water and sanitation.

OVERHEAD TANK MAINTENANCE

Periodic cleaning of the overhead tanks in different blocks is conducted to ensure the removal of accumulated sediment, dirt, and debris. This maintenance activity aims to maintain water quality and prevent blockages in the distribution system.





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OVERHEAD TANK MAINTENANCE





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RO PLANT MAINTENANCE

The Reverse Osmosis (RO) plant in an academic campus is essential for supplying clean and safe drinking water to students, faculty, and staff. Regular maintenance is crucial to ensure the RO plant operates at its best and lasts for a long time. Key maintenance tasks include filter replacement, cleaning and sanitation, pressure and flow monitoring, pump and motor maintenance, and water quality testing. These measures are periodically implemented to ensure the provision of clean and potable water.





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OTHER SDGS INTERLINKED WITH SDG 6









Institution has established various water conservation measures to harvest and recycle the water from the sources in the campus.

RAINWATER HARVESTING

Conventional rainwater harvesting pits measuring 02 feet x 02 feet in size have been established around the campus to collect the rooftop runoff. Rainwater is collected from a roof-like surface and redirected to a pit so that it seeps down and restores the groundwater.

(a) Conventional Rainwater Harvesting Pit



Rainwater harvesting pit (Long view)



Rainwater harvesting pit (Top view)

(b) Perforated Drain Channel

Perforated land drain is used to collect water through the small holes located around the pipe. These holes allow water to seep from the ground into the pipe and be carried away over the drains directly into the drainage channels. This finally reaches the sewage treatment plant operated inside the campus. Here, the collected water is treated efficiently and reused for gardening, vehicle cleaning and toilet sanitation.



Perforated drain channel slabs (Close view)



Perforated drain channel slabs (Long view)

2. BOREWELL /OPEN WELL RECHARGE

The institute has installed 45 number of borehole points and 13 number of borewells within the campus to recharge the groundwater from runoff.



View of the bore well recharge facility



Map of Borewell points inside the campus

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BOREHOLE FOR GROUNDWATER RECHARGE



RAINWATER



CHANNEL WITH CHECKDAM

SPECIFICATIONS

Total number of Borehole: 45 No's

Pit Diameter: 150 mm

Borehole Depth: 100 Ft

Slotted Pipe Length: 20 Ft

Total Slotted Pipe in each Pit: 5 No's

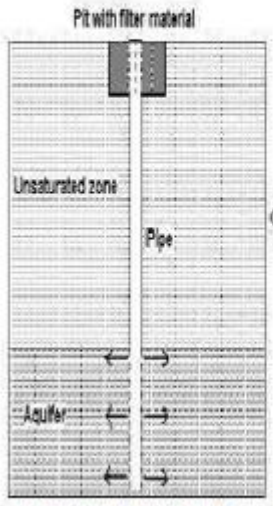
Distance Between each Pit: 30 Ft

Purpose of Check dam: To reduce Velocity of Water Flow

Purpose of Borehole: To recharge Groundwater.



BOREHOLE



AQUIFER RECHARGE

3. CONSTRUCTION OF TANKS AND BUNDS

Institute has dedicated water tank to store and supply water to the entire campus requirement. The water is drawn from the borewell and stored in the Overhead Water Tank (OWT). From OWT it is distributed through underground pipelines to the destination points.



Overhead Water Tank

4. Bunds / Check dams with percolation pits by deep bore holes

Percolation pits along the runoff channels with a check dam facility have been built. Around 45 pits were excavated along the flow channel each measuring a depth of 100 feet. The check dams were constructed adjacent to each pit along the channel to store a minimum quantity of water in each chamber to recharge the groundwater and the excess water overflows to the next chamber along the channel.



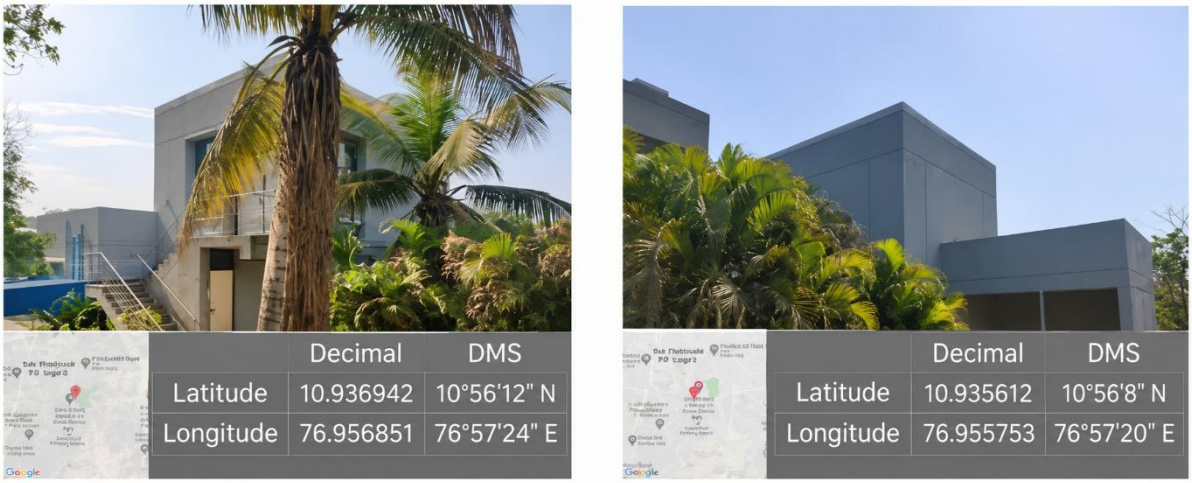
Check dam along the runoff channel with percolation pits (Dry Season)



Check dam along the runoff channel with percolation pits (Rainy Season)

5. WASTE WATER RECYCLING

The campus wastewater discharged from restrooms, canteen and washing area are recycled through Sewage Treatment Plant installed inside the campus with a capacity of 450KLD. The treated wastewater is reused for gardening, flushing in toilets and cleaning vehicles.



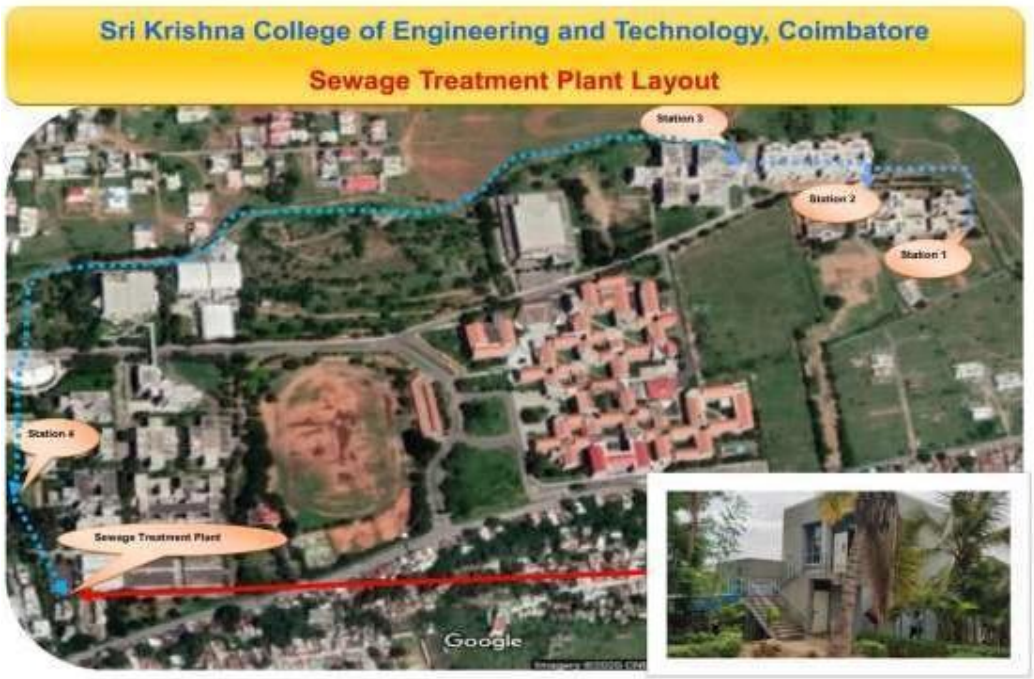
Overview of Sewage Treatment Plant



Primary Treatment Unit



Secondary treatment units and treated water storage area

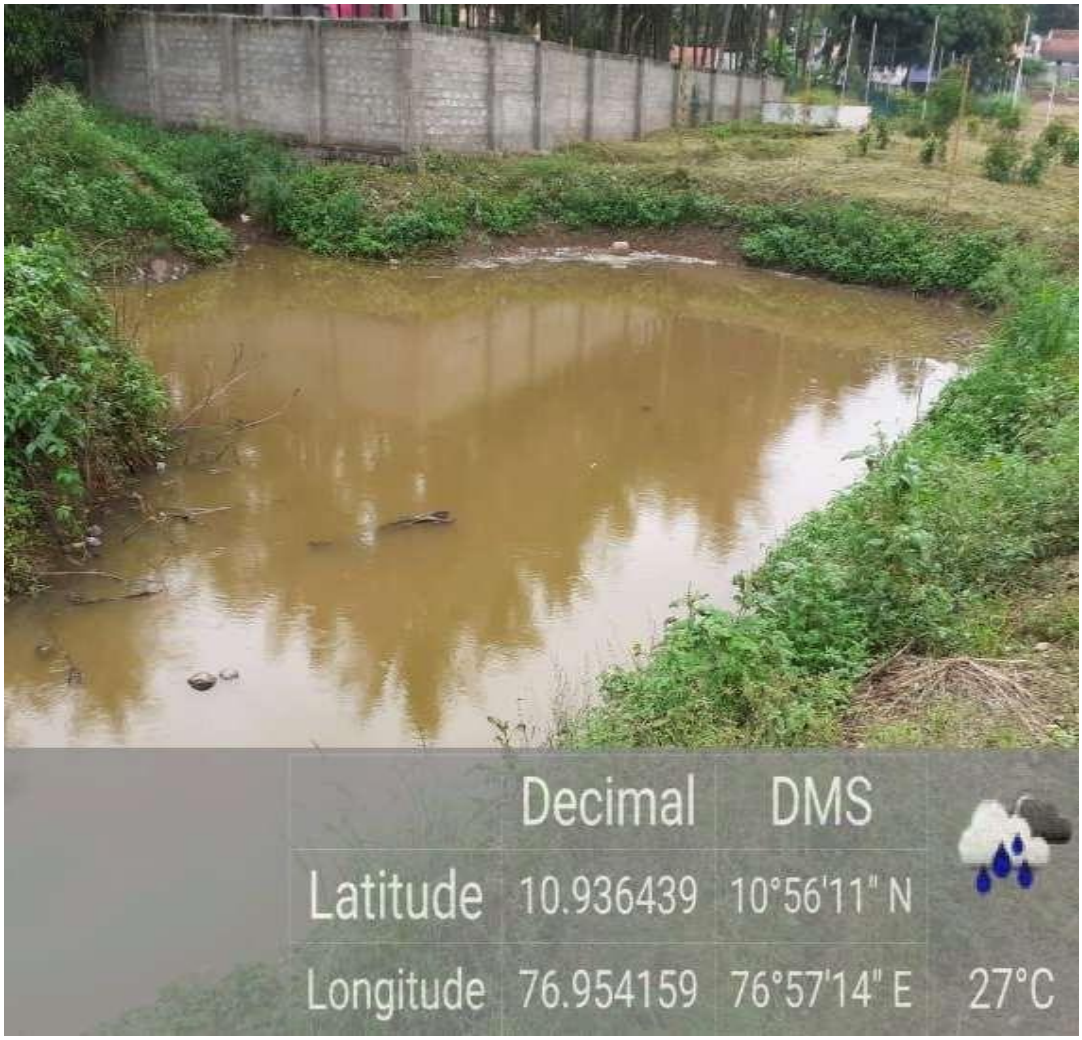


Google map layout showing the Sewage Treatment Plant and the collection stations

6. MAINTENANCE OF WATER BODIES AND DISTRIBUTION SYSTEM IN THE CAMPUS

Percolation Pond

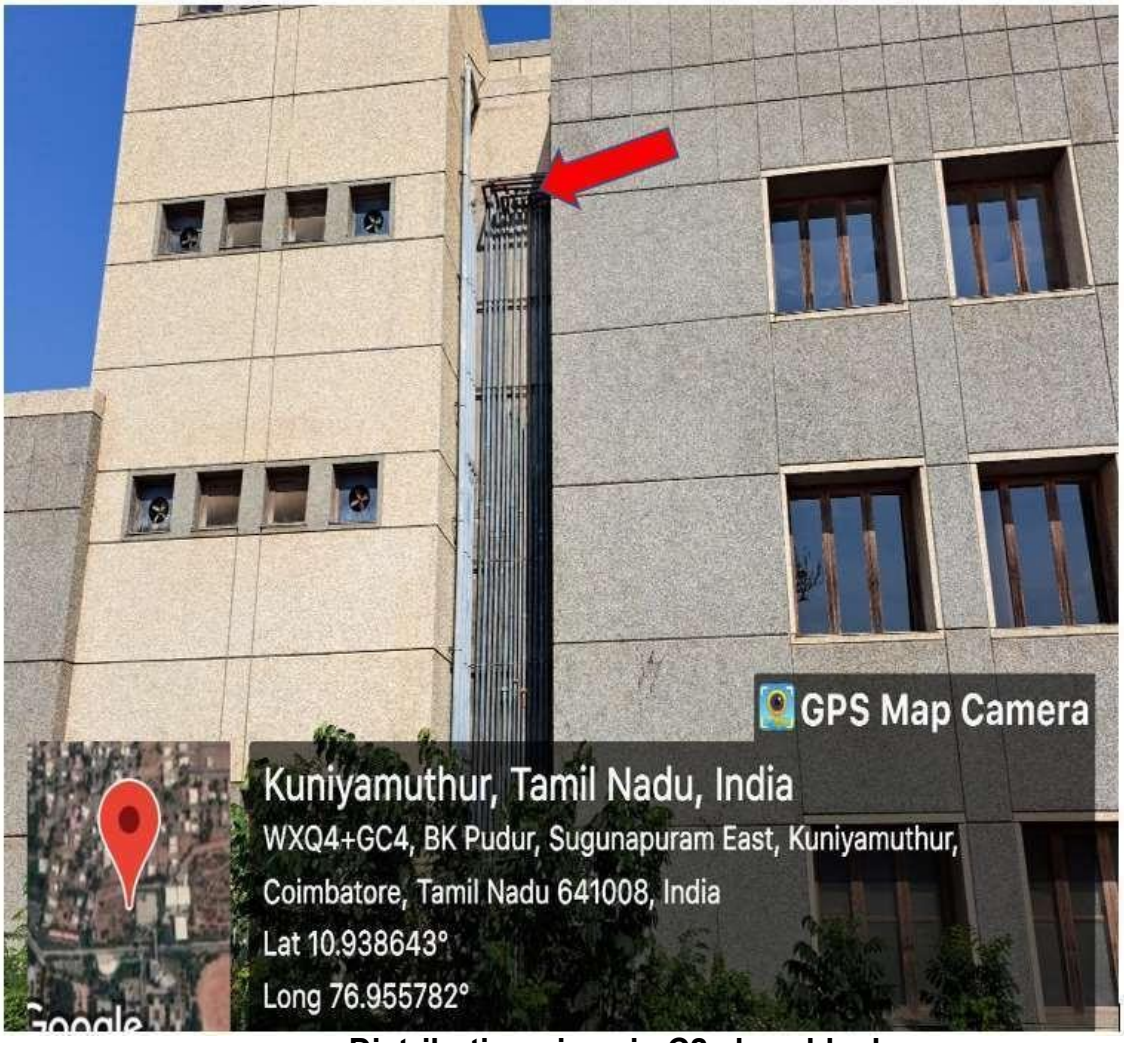
Percolation pond is the most effective runoff harvesting structure inside the campus. An artificial percolation pond, holding 20,000 liters, is dug after assessing the landscape and existing drains to trap and retain rainwater runoff from roads and paved surfaces during intense rainfall. This extended retention period contributes to replenishing the local groundwater supply within the pond's area of influence.



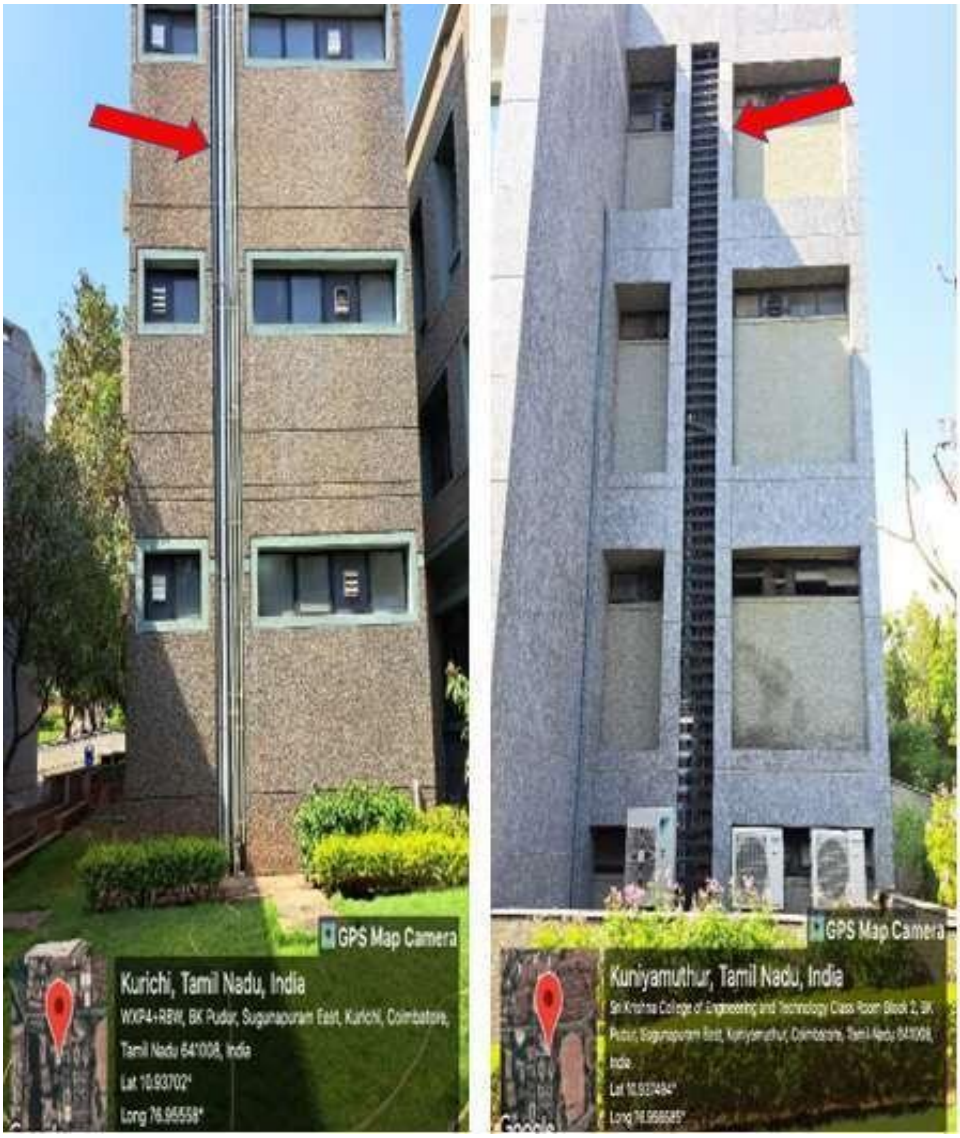
Runoff collection Pond

Distribution system

The water from borewell is pumped to ground level tank to overhead tank and is stored and distributed throughout the campus. The water is distributed through well laid pipe network to all areas inside the campus. Entire distribution system is well supervised by Civil works committee to ensure that there are no leakages and wastage of precious water through joints, valves etc. Maintenance of distribution system is taken care by the dedicated staff members (Plumbers). Whenever the problems are identified immediate actions are taken to avoid wastage of water. Drinking water is supplied from the institute Reverse Osmosis (RO) plant through water containers regularly based on the seasonal demand.



Distribution pipes in C2 class block



Distribution pipes in MCA block (Left side) and Admin block (right side)



RO plant front view



Filtration units inside RO plant



Filtered water storage unit



Filtered water to water cans for distribution



Distribution of water cans from RO plant





Drinking water facility in blocks

Facilities in the Institution for the management of the following types of degradable and non-degradable waste

The Institution has implemented effective methods for managing the waste generated on the campus, employing the fundamental waste management strategy of 3R's: Reduce, Reuse, and Recycle. The types of waste generated on the campus encompass liquid waste, solid waste and chemical waste. Aligned with the Institution's environmental policy, the goal is to achieve zero discharge and ensure the comprehensive utilization of waste. The Institution has devised well-thought-out strategies to maintain a clean, hygienic and healthy campus environment.

SOLID WASTE MANAGEMENT

Renowned for its verdant campus, the Institution addresses the daily influx of organic waste and leaves through a robust Self -Developed Solid Waste Management system. This eco-conscious approach repurposes waste into fertilizers and manure, enriching the lush greenery that defines the campus. A systematic process, spanning Collection, Segregation, Deposition, Homogenization, Moisture Optimization, Harvesting, and Storage, ensures sustainability. The Institution has strategically placed multiple collection and segregation points, underscoring its commitment to environmental responsibility. The use of Plastics bags are prohibited within the campus.

LIQUID WASTE MANAGEMENT

The liquid waste produced by canteens, mess and toilets undergoes treatment at the on-campus Sewage Treatment Plant (STP) with a 450 KLD capacity located behind the laboratory block. The recycled water, enriched with nutrients beneficial for plant growth, is utilized for gardening purposes. The treatment process involves several stages: Screening Chamber, Aeration Tank, Sedimentation Tank, and Collection Tank 1, Pressure Filter, and Collection Tank 2. This systematic approach ensures the effective treatment of liquid waste, promoting environmental sustainability within the campus.

E-WASTE MANAGEMENT

The Institution has partnered with M/s. Green Era Recyclers, the sole certified e-waste recycler by Tamil Nadu Pollution Control Board in Coimbatore, to manage e waste. It effectively handles e-waste by routinely disposing significant items such as outdated instruments, computers and electronic gadgets. Miscellaneous e-waste, such as CDs, batteries, and PCBs, are collected and handed over to the partnered recycler.

WASTE RECYCLING SYSTEM

The campus places a high priority on recycling and reusing the waste it generates. The Institute owns waste water recycling system and degradable solid waste recycle system. Solid wastes are sorted into degradable and non-degradable categories. Degradable waste, such as garden and kitchen waste, undergoes composting in the solid waste yard to convert organic waste into manure. Additionally, food wastes from HoR – Men, HoR-Women and cafeteria are collected and transferred to bio-gas plant. Recyclable paper wastes, including answer sheets used by the students, old records and waste papers, are systematically collected and stored in a designated common room. The collected materials are then handed over to paper recyclers, contributing to the campus's efforts in promoting environmental responsibility.

HAZARDOUS CHEMICALS WASTE MANAGEMENT

Hazardous chemicals, including strong acids like HCL, HNO3, H2SO4, are securely stored in designated laboratory rooms, safeguarding human health and the environment. The Institution partners with M/s. Cheenu Enviro Management, authorized by TNPCB, for the safe handling and disposal of hazardous waste generated within the campus, aligning with Hazardous Waste Management Rules 2016.