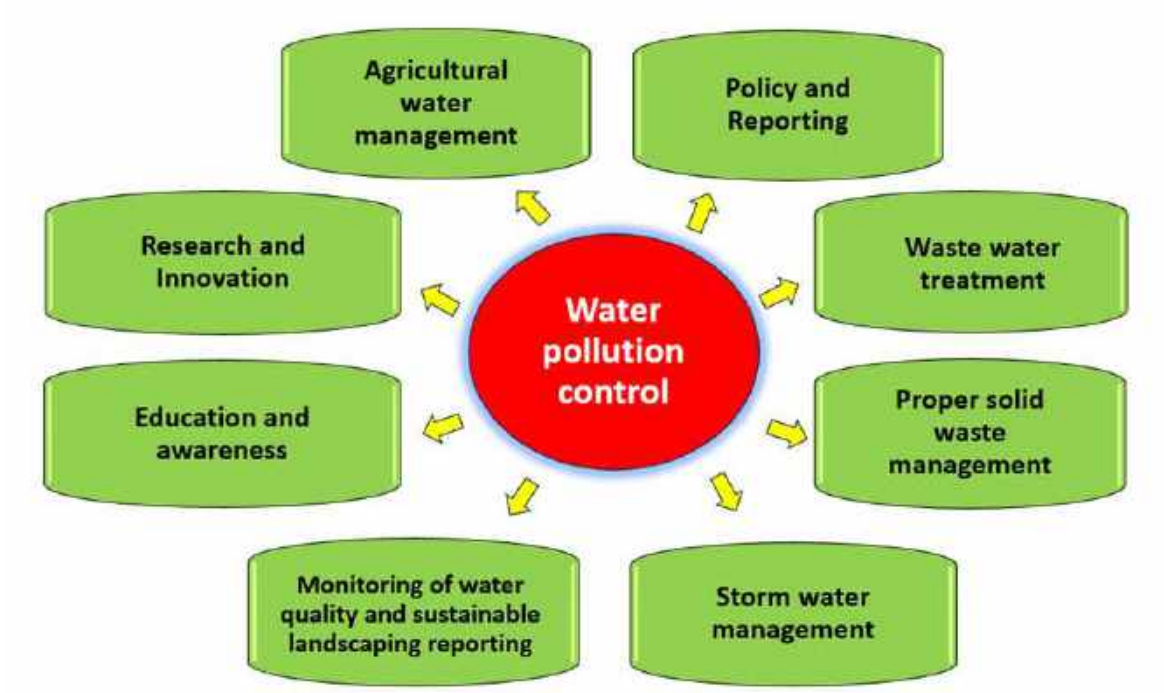
University	:	Karunya Institute of Technology and Sciences
Country	:	India
Web Address	:	https://www.karunya.edu/

[4] Water (WR)

[4.5] Water pollution control in campus area (WR.5)



Water pollution control measures in Karunya University Campus

Description:

Karunya Institute of Technology and Sciences (KITS), a large residential campus nestled within the rich biodiversity of the Western Ghats, is deeply committed to environmental stewardship. The institution has implemented strategic initiatives to preserve nature in its pristine form and to maintain a clean, green, eco-friendly, and sustainable campus ecosystem. To ensure efficient water management and responsible handling of liquid, solid, and e-waste, several green initiatives have been adopted. The institute actively addresses challenges such as storage tank and sump overflows, greywater and blackwater management, recycling and reuse of treated water, agricultural water and stormwater management. Furthermore, innovative, cost-effective, and eco-friendly solutions are being explored for providing potable drinking water. Awareness programs on water conservation and management are also conducted to promote a culture of sustainability across the campus.

Agricultural water management

KITS has adopted sustainable agricultural water management practices such as drip and sprinkler irrigation systems to ensure efficient water use and minimize nutrient runoff. Additionally, check dams, percolation ponds, and farm ponds have been established within the campus to promote groundwater recharge, reduce soil erosion, and prevent the contamination of nearby water bodies.

Policy and Reporting

KITS has formulated and implemented environmentally sustainable policies and guidelines outlined in Section 5 of the Policy on Environmental Sustainability – Green Campus, Environment and Energy Conservation. These guidelines emphasize wastewater treatment, water quality monitoring, and pollution control measures to ensure responsible and sustainable campus operations.


5. ENVIRONMENTAL POLICY STATEMENTS

Water | Energy | Waste | Transport | Biodiversit | Sustainable Purchasing | Sustainable Buildings

SUSTAINABLE DEVELOPMENT

5.1 Water

Water conservation and management practiced in KITS are to provide safe water, review opportunities and implement measures in water conservation, treatment, and to reduce pollution entering into its water courses through storm water drains and sewers. KITS ensures that regular assessment of both surface and ground water quality and quantity is carried out, keeping in view the Sustainable Development Goals of the UN.

Wastewater Treatment

At KITS, five Sewage Treatment Plants (STPs) have been established in the student residences to enable the effective recycling and reuse of greywater generated from sinks, showers, kitchen utensil washing, and laundry facilities. In addition, four biogas plants are operational to treat blackwater from the residences, facilitating biogas recovery that substitutes two to three commercial LPG cylinders daily for cooking purposes. The treated wastewater from the STPs, distributed through 113 outlets, is efficiently reused for gardening and landscape maintenance. Detailed information on the capacity of each STP, inflow rates, and the volume of treated effluent is provided in Metric 4.2.

Proper Solid Waste Disposal

KITS has implemented a comprehensive system for the collection and segregation of biodegradable and non-biodegradable waste materials. To facilitate source segregation of

organic, recyclable, non-recyclable, and e-waste, a total of 3,000 waste bins have been strategically placed across the campus, including student residences, staff quarters, and guest houses. The waste collection, segregation, and disposal processes are managed by the authorized contractor, M/s Metro Support Services, Coimbatore. Additionally, organic compost is produced from biodegradable waste through vermicomposting at the Karunya North Land facility, promoting sustainable waste management and resource recovery.

Eco-Friendly Paper Recycling Unit

Approximately 150–200 kg of waste paper (equivalent to 45,000–60,000 kg annually over 300 working days) is segregated daily from the waste generated across the KITS campus. Utilizing this waste, an Eco-friendly Paper Recycling Plant, established in January 2017 at a cost of Rs. 2.5 million, efficiently converts discarded paper into useful products. The plant produces 25–30 tons of paper boards (grey boards) annually, which are sold to vendors and can be further used to manufacture items such as files, folders, and decorative materials. Beyond its economic value, this initiative has significantly enhanced environmental awareness and promoted sustainable waste management practices among all stakeholders of Karunya Educational Institutions.

Stormwater Management and water conservation measures (Rooftop and runoff harvesting)

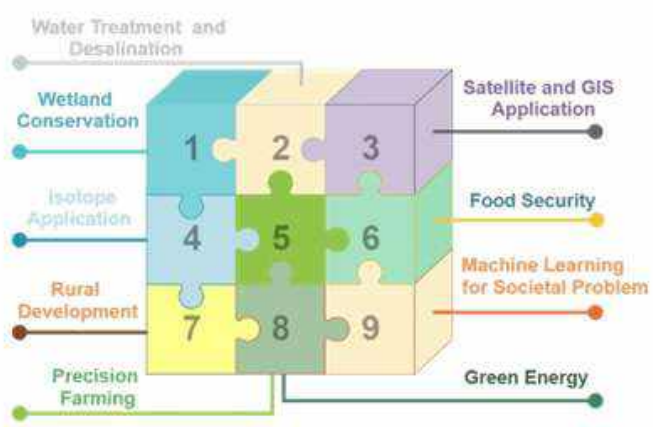
KITS has implemented an integrated stormwater management system that includes rooftop rainwater harvesting structures, well-designed drainage channels, and permeable pavements to enhance groundwater recharge and minimize stormwater runoff across the campus.

Periodic Monitoring of Water Quality and Reporting

In accordance with institutional policy, KITS conducts regular monitoring of water quality across the campus, including periodic testing of raw water sources for potential contaminants. Comprehensive reports are prepared and reviewed periodically to ensure compliance with water safety and quality standards.

Education and Awareness

KITS promotes capacity building through a range of initiatives, including awareness programs, training workshops, extension and community development activities, as well as innovative pilot projects. These efforts are implemented under various Karunya Technology Missions focused on areas such as Water and Desalination, Wetland Conservation, Rural Development, Smart Technologies for Precision Farming, and Food Security.



The Nature Club of KITS, comprising three units — Environment, Green Campus, and Solid Waste Management provides students and staff with opportunities to actively engage in environmental conservation. The club organizes diverse activities such as nature trails, plantation drives, forest treks, film screenings on biodiversity and environmental issues, as well as competitions and awareness campaigns aimed at fostering environmental stewardship within the campus community.

Research and Innovation

KITS is actively engaged in developing innovative, cost-effective, and eco-friendly solutions to address key water-related challenges, including the availability of potable water, greywater and blackwater treatment, and groundwater remediation. These efforts are driven by interdisciplinary research and development activities within the campus, leading to the creation of sustainable technologies and practical applications.

Scientific interventions include:

i. Evaluating the performance of STP unit operations through modeling and simulation studies.
ii. Conducting periodic monitoring and characterization of raw and treated effluents from STPs.
iii. Producing biochar from agricultural waste for the purification of contaminated water.
iv. Isolating microbial strains from campus STPs for bioremediation of wastewater and treatment of effluents from small-scale textile dyeing units in and around Coimbatore.
v. Developing microbial fuel cell-based systems for greywater treatment and exploring electrocoagulation technology for recycling and reusing detergent water.
vi. Designing a conceptual model for decentralized wastewater treatment at household and community levels.

Additional evidence link
https://www.karunya.edu/iqac/ranking/UIGreenMetric