स्वामी राम हिमालयन विश्वविद्यालय
Swami Rama Himalayan University

[CORE] Social Responsibility (SR)

Sub Criterion: 5.3

SR4 Environmental impact

Sustainability Report

Report on Liquid Waste Management and Recycling Practices at SRHU

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Liquid Waste Management at Swami Rama Himalayan University

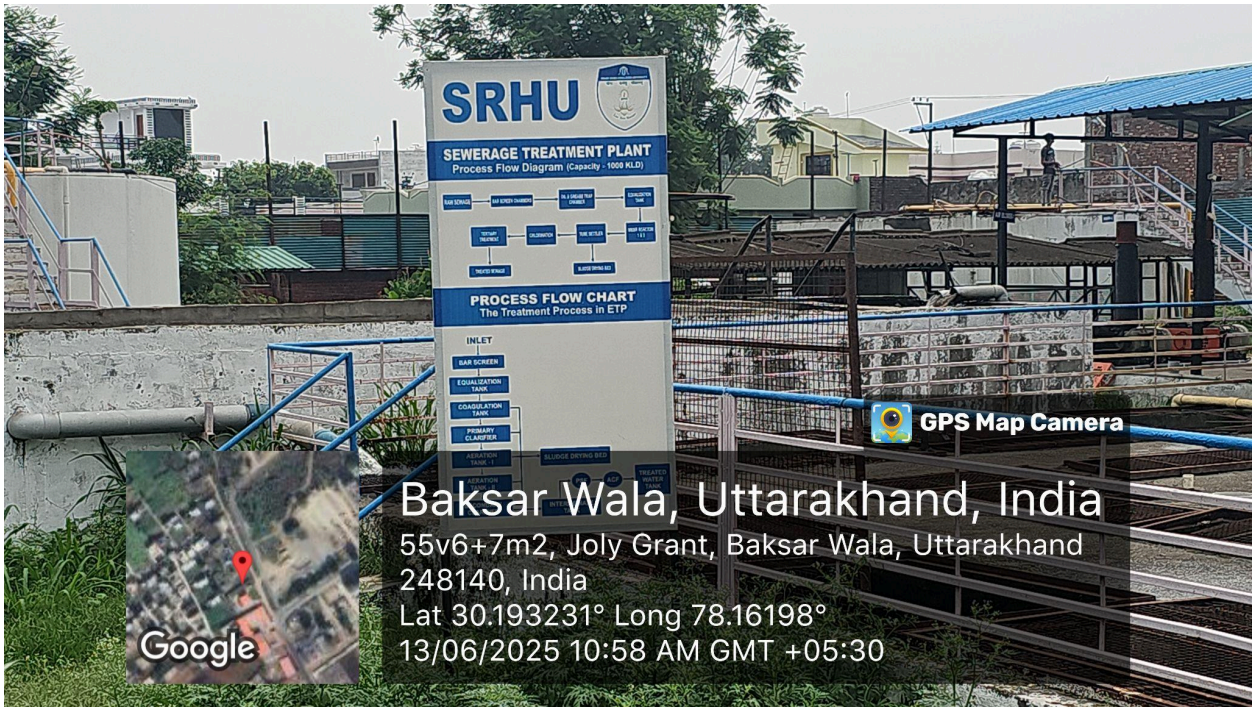
Swami Rama Himalayan University (SRHU) has established itself as a model for institutional water stewardship, integrating wastewater treatment, rainwater harvesting, and conservation innovations to minimize freshwater dependency and promote long-term sustainability. These initiatives are implemented through a combination of engineering infrastructure, scientific research, administrative policy, and community engagement, supported by continuous monitoring. In alignment with SDG 6 (Clean Water and Sanitation), SRHU demonstrates a robust and sustainable approach by leveraging advanced treatment systems and policy measures to ensure efficient water recycling and reuse across the campus.

1. Sewage Treatment Plant (STP):

The Sewage Treatment Plant (STP) at Swami Rama Himalayan University has a capacity of 1 million liters per day (1 MLD) and treats wastewater generated from the hospital, hostels, academic blocks, residential areas, and other utility facilities. The plant employs a multi-stage biological treatment process that combines Moving Bed Biofilm Reactor (MBBR) technology with extended aeration, primary and secondary sedimentation, and dual media filtration using sand and activated carbon. This advanced system ensures the effective removal of organic and inorganic impurities. The treated water consistently meets the quality standards of the State Pollution Control Board and is safely reused for irrigation, sanitation, and landscaping across the campus. To maintain compliance and safety, the quality of inlet and outlet water is tested biannually in a NABL-accredited laboratory.

Standard Operating Procedure for STP Click Here

Sewage Treatment Plant (Capacity 1 MLD)



Process Flow Chart of STP

Control panel and dual media filtration unit at Sewage Treatment Plant

Filtration tanks, pumps, and sludge filter press at STP, forming part of the advanced wastewater treatment and recycling system

Sewage Treatment Plant

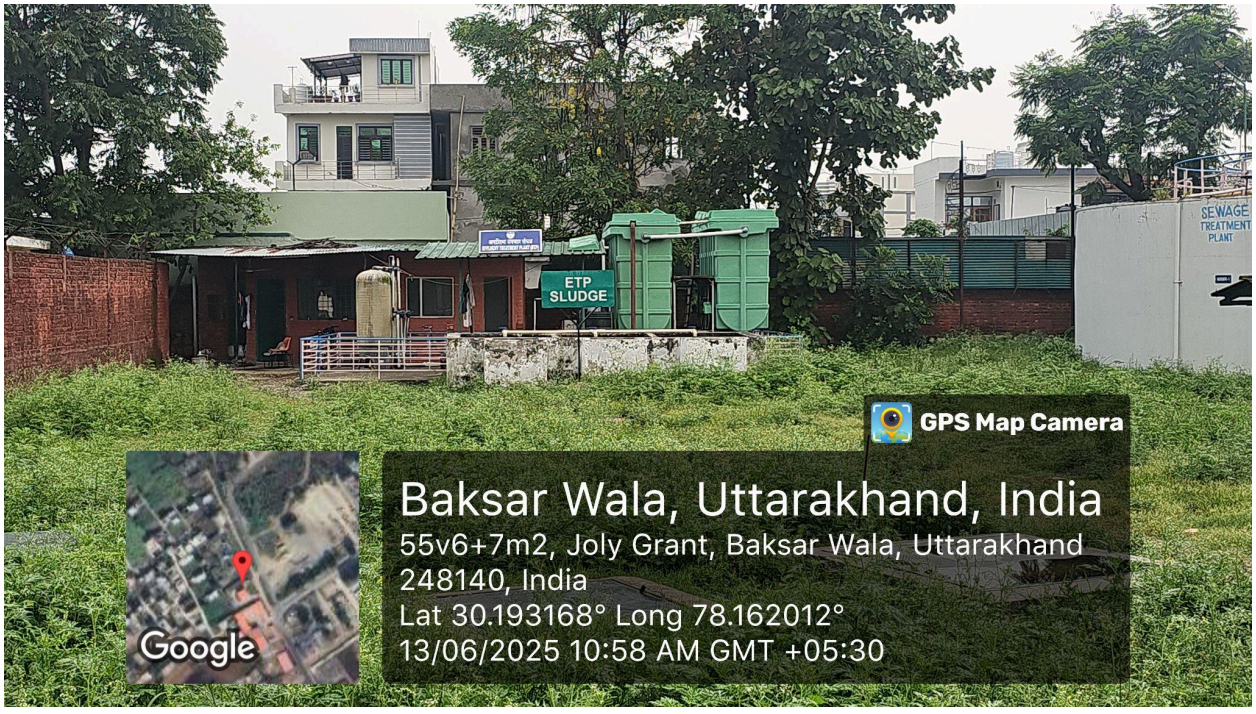
[Video]

Aeration tank at STP, where wastewater undergoes biological treatment

Pump house and pipeline network at Sewage Treatment Plant

2. Effluent Treatment Plant (ETP):

The Effluent Treatment Plant (ETP) at Swami Rama Himalayan University has a treatment capacity of **90 KLD (kiloliters per day)** and is specifically designed to manage wastewater generated from laboratories, laundry units, and hospital services. The plant ensures effective removal of harmful contaminants, including both toxic and non-toxic substances, thereby reducing the risks to human health and the environment. The treated water, after meeting the quality standards prescribed by the State Pollution Control Board, is reused within the campus for irrigation, sanitation, and other non-potable purposes. This process not only minimizes freshwater dependency but also strengthens the university's commitment to sustainable water management and conservation.



Effluent Treatment Plant at SRHU with 90 kiloliters per day capacity

Standard Operating Procedure for ETP Click Here

3. Water Consumption and Reuse Metrics

- **Freshwater Demand:** The total water requirement of the campus is around **1,200 KLD**, covering hospital, academic, residential, and utility needs.

- **Domestic Use:** Nearly **1,080 KLD** is allocated for essential activities such as drinking, bathing, and cleaning across hostels, residences, and clinical facilities.

- **Irrigation Needs:** About **700 KLD of treated sewage water** is reused daily for maintaining the university's **1,60,800 sqm green belt**, reducing dependence on freshwater.

- **Water Recycling Growth:** Click Here

    - **2023:** 8.14 million liters of wastewater recycled.
    - **2024:** 9.19 million liters recycled, showing a **12.9% increase year-on-year**, reflecting SRHU's strengthened reuse practices.

- **Applications of Treated Water:** Recycled water is used for irrigation, gardening, toilet flushing, and cleaning/maintenance, ensuring resource optimization.

- **Compliance and Monitoring:** All treated water conforms to State Pollution Control Board standards and undergoes regular NABL-accredited lab testing for quality assurance.

4. Educational Integration:

Students gain practical experience through visits to the STP and ETP to observe treatment stages—primary sedimentation, aeration, secondary settling, and filtration—and compare untreated versus treated water.

Students observing the primary sedimentation process at the STP

Field visit to STP bridging classroom learning with real-world treatment processes