

Swami Rama Himalayan University

Sdg 14 – Life Below Water

Plan for Minimizing Alteration of Aquatic Ecosystem

2022–2030

Towards a Water-Secure, Pollution-Preventive and Aquatic-Ecosystem Responsible University

Swami Ram Nagar, Jolly Grant, Dehradun – 248016, Uttarakhand, India

Minimizing Alteration of Aquatic Ecosystem (Plan)

1. Preamble

Swami Rama Himalayan University (SRHU) recognizes that protection of aquatic ecosystems requires responsible management of water, wastewater, stormwater, solid waste and potentially polluting materials. Although the University is located inland in the Himalayan region, activities on the campus can influence freshwater resources, drainage systems, groundwater and downstream riverine environments. SRHU therefore seeks to minimize alteration of aquatic ecosystems through conservation, pollution prevention, treatment and reuse, monitoring, research, education and stakeholder engagement.

SRHU has established institutional mechanisms and policies relevant to this objective, including a Policy for Water Conservation and a Policy for Reducing Marine Pollution. The University's water-management information reports rainwater harvesting, groundwater recharge, wastewater treatment and reuse, water-efficient fixtures and monitoring. The marine-pollution policy extends pollution-prevention principles to operations, waste, wastewater, suppliers, awareness and collaboration.

Accordingly, this plan provides a consolidated institutional framework for translating these existing measures into a measurable programme for minimizing alteration of aquatic ecosystems during 2026–2030.

2. Vision

To develop Swami Rama Himalayan University as a water-responsible and aquatic-ecosystem-sensitive University that minimizes pollution and physical alteration of aquatic systems through efficient water use, wastewater treatment and reuse, rainwater harvesting, groundwater recharge, pollution prevention, aquatic research, environmental education and community engagement.

3. Objectives

The SDG aims to:

- 3.1.** Reduce avoidable freshwater consumption and improve water-use efficiency across academic, healthcare, residential and outdoor facilities.
- 3.2.** Maximize appropriate treatment and safe reuse of wastewater and prevent untreated or inadequately treated discharges.
- 3.3.** Promote rainwater harvesting and groundwater recharge while reducing uncontrolled surface runoff.

- 3.4. Prevent solid waste, plastics, chemicals, oils and other pollutants from entering drainage systems and downstream aquatic environments.
- 3.5. Protect and improve water quality through systematic monitoring and preventive action.
- 3.6. Promote research and innovation on aquatic ecosystems, water quality, aquatic toxicology, biodiversity and sustainable water management.
- 3.7. Integrate SDG 14 into teaching, student projects, experiential learning and awareness activities.
- 3.8. Strengthen collaboration with government agencies, communities, NGOs and research organizations on aquatic ecosystem conservation.
- 3.9. Monitor, document and publicly report progress using measurable indicators and institutional evidence.

4. Strategic Action Areas

4.1 Water Conservation and Sustainable Water Management

SRHU will strengthen responsible water use as a first-line measure for reducing pressure on aquatic and groundwater resources. The University's Water Conservation Policy covers academic and administrative buildings, hospitals and healthcare facilities, hostels and residences, laboratories, outdoor areas and landscaping. It promotes water-efficient fixtures, metering, rainwater harvesting, groundwater recharge, treated-water reuse and water-conservation awareness.

SRHU's website reports that in 2024–25 approximately 95% of wastewater was treated and reused; 4,145 of 4,596 taps were fitted with low-flow fixtures; and 175,714.13 sq. ft. of rooftop area was connected to rainwater harvesting. These figures will be used as baseline evidence for annual improvement tracking.

- 4.1.1. Maintain and progressively improve water-use efficiency through metering, low-flow fixtures and leakage control.
- 4.1.2. Maintain rainwater harvesting and groundwater recharge structures and document annual performance.
- 4.1.3. Promote treated wastewater reuse for appropriate non-potable purposes.
- 4.1.4. Use water-efficient landscaping, drip irrigation and moisture-based irrigation where feasible.
- 4.1.5. Conduct annual water audits and review water-consumption trends.
- 4.1.6. Continue awareness programmes for students, faculty and staff.

4.2 Wastewater Treatment, Reuse and Pollution Prevention

SRHU operates a 1 MLD Sewage Treatment Plant using MBBR with extended aeration and tertiary filtration, and a 90 KLD Effluent Treatment Plant for clinical and laboratory effluents. The University reports reuse of treated water for green-belt irrigation and other non-potable uses, regular quality monitoring and compliance with applicable State Pollution Control Board requirements.

- 4.2.1. Maintain uninterrupted operation and preventive maintenance of STP and ETP systems.
- 4.2.2. Monitor treatment performance and maintain documented inlet/outlet water-quality records.
- 4.2.3. Continue periodic testing through appropriately accredited laboratories.
- 4.2.4. Reuse treated water for irrigation, construction-related and other suitable non-potable applications.
- 4.2.5. Maintain sludge-handling and disposal procedures.
- 4.2.6. Establish an incident-response protocol for treatment-system failure, abnormal discharge or spill events.
- 4.2.7. Prevent direct or indirect discharge of untreated solid or liquid waste into drains or waterways.

4.3 Rainwater Harvesting and Groundwater Recharge

SRHU reports a comprehensive rainwater harvesting system, including recharge pits, borewell recharge structures and an underground storage tank. The University's water-conservation information reports annual rainfall of approximately 2073.3 mm and a substantial annual rainwater-harvesting potential. These systems contribute to reducing runoff, supporting groundwater recharge and reducing dependence on external water sources.

- 4.3.1. Maintain and desilt rainwater-harvesting and recharge structures before and after the monsoon.
- 4.3.2. Record annual harvested water, recharge volume and utilization.
- 4.3.3. Monitor groundwater levels and identify long-term trends.
- 4.3.4. Protect recharge structures from contamination by solid waste, chemicals, oils and untreated wastewater.
- 4.3.5. Integrate rainwater management into future campus infrastructure planning.

5. Aquatic Ecosystem Protection and Pollution Prevention

5.1 Prevention of Pollution Reaching Aquatic Systems

SRHU's Policy for Reducing Marine Pollution requires prevention of pollutant discharge into marine and coastal waters, reduction of single-use plastics, responsible waste management and wastewater treatment, and prevention of direct or indirect discharge of solid or liquid waste into waterways or drainage systems leading to the sea. The same preventive approach will be operationalized for freshwater and downstream aquatic systems relevant to the University.

- 5.1.1. Strengthen segregation, recycling, recovery and responsible disposal of campus waste.
- 5.1.2. Reduce single-use plastics and monitor plastic consumption and waste generation.

- 5.1.3. Ensure hazardous and chemical wastes are handled through authorized systems.
- 5.1.4. Prevent oil, grease and chemical leaks from machinery, vehicles, laboratories and storage areas.
- 5.1.5. Maintain spill-containment materials and response procedures at relevant locations.
- 5.1.6. Inspect stormwater drains and drainage pathways periodically.
- 5.1.7. Prevent contaminated runoff from reaching recharge structures and natural drainage channels.
- 5.1.8. Include environmental pollution-prevention requirements in relevant procurement and contractor arrangements.

5.2 Water Quality and Aquatic Ecosystem Monitoring

A structured monitoring programme will be developed to identify potential changes in water quality and aquatic ecosystem condition. Monitoring priorities will be selected according to the characteristics of the campus, nearby water resources and institutional research capacity.

- 5.2.1. Establish baseline water-quality data for selected campus and nearby water resources, where access and permissions permit.
- 5.2.2. Monitor appropriate physical, chemical and microbiological parameters.
- 5.2.3. Track pH, temperature, turbidity, electrical conductivity/TDS, dissolved oxygen, BOD, COD, nutrients and microbiological indicators as relevant to the water body and monitoring objective.
- 5.2.4. Where feasible, incorporate biological indicators such as plankton, macroinvertebrates and fish diversity.
- 5.2.5. Maintain a digital annual water-quality database.
- 5.2.6. Investigate abnormal trends and document corrective action.

5.3 Protection of Aquatic Biodiversity

- 5.3.1. Avoid activities that unnecessarily disturb natural drainage channels, ponds, streams or aquatic habitats.
- 5.3.2. Promote native vegetation and ecological buffers in appropriate areas.
- 5.3.3. Incorporate aquatic and riparian biodiversity considerations into campus planning.
- 5.3.4. Use research and student projects to document aquatic biodiversity and ecosystem services.
- 5.3.5. Link biodiversity conservation with water-quality and pollution-prevention activities.

6. Research, Education and Innovation

6.1 Aquatic and Water Research

SRHU will promote interdisciplinary research that supports SDG 14 and the prevention of aquatic ecosystem alteration. Existing academic strengths in environmental science, aquatic biology and water-related activities can be used to generate evidence for institutional improvement and community conservation.

- 6.1.1.** Encourage research on aquatic toxicology, aquatic biodiversity, water quality and pollution monitoring.
- 6.1.2.** Promote research on wastewater treatment, water reuse, rainwater harvesting and groundwater recharge.
- 6.1.3.** Encourage studies on microplastics, emerging contaminants and pollutant pathways where facilities and resources permit.
- 6.1.4.** Promote sustainable aquaculture and aquatic animal health research.
- 6.1.5.** Encourage innovation in biochar, algae, microbial and other nature-based approaches for water remediation.
- 6.1.6.** Use research findings to improve campus water and pollution-management practices.

6.2 Curriculum and Experiential Learning

- 6.2.1.** Integrate SDG 14 and aquatic ecosystem conservation into relevant courses.
- 6.2.2.** Use STP/ETP visits and water-management facilities for experiential learning.
- 6.2.3.** Encourage student dissertations, projects and assignments based on campus sustainability data.
- 6.2.4.** Organize seminars, workshops, quizzes, poster competitions and awareness campaigns.
- 6.2.5.** Promote World Water Day, World Environment Day and World Oceans Day activities.
- 6.2.6.** Develop student-led water and aquatic ecosystem monitoring initiatives.

6.3 Capacity Building

- 6.3.1.** Train facility and maintenance personnel in water conservation, wastewater systems and spill response.
- 6.3.2.** Train faculty and students in basic water-quality monitoring and data interpretation.
- 6.3.3.** Conduct annual awareness programmes on responsible water use and aquatic pollution prevention.
- 6.3.4.** Provide guidance to contractors and service providers on waste, chemical and spill-management requirements.

7. Action with Government, Community and Research Partners

SRHU recognizes that aquatic ecosystem protection extends beyond the campus boundary. The University will collaborate, as appropriate, with government departments, pollution-control authorities, local bodies, educational institutions, NGOs, community groups and research organizations.

- 7.1. Collaborate on water conservation, water-quality monitoring and river-related environmental programmes.
- 7.2. Participate in community awareness and aquatic pollution-prevention activities.
- 7.3. Support student and faculty engagement with local environmental programmes.
- 7.4. Share relevant institutional expertise in water, sanitation, wastewater treatment and environmental monitoring.
- 7.5. Explore joint research and capacity-building programmes with appropriate external organizations.

8. Implementation and Monitoring Framework

The designated Sustainability Committee shall coordinate implementation of this plan in consultation with relevant University departments and stakeholders. Facilities and Maintenance, WATSAN, academic departments, research units, hospital and laboratory administration, IQAC and student groups will support implementation according to their roles.

Action Area	Key Indicator	Target/Direction	Monitoring
Water conservation	Water consumption; low-flow fixtures; leakage incidents	Reduce avoidable consumption; increase efficiency	Annual
Wastewater	% wastewater treated and reused; STP/ETP performance	Maintain high treatment and appropriate reuse	Monthly/Annual
Water quality	No. of tests; parameter compliance; trends	Regular monitoring and corrective action	Quarterly/Annual
Rainwater & recharge	Harvested/recharged volume; functioning structures	Maintain and improve systems	Pre/post monsoon
Pollution prevention	Plastic use; waste; spill/discharge incidents	Reduce pollution risks; zero intentional discharge	Annual
Aquatic biodiversity	Surveys; species records; research projects	Increase evidence base and protection measures	Annual
Research & education	Projects, publications, student activities	Increase SDG 14 engagement	Annual
Community engagement	Programmes and participants	Strengthen collaboration	Annual
Public disclosure	SDG/sustainability reporting	Annual disclosure of progress	Annual

9. Responsibilities

- 9.1. University Leadership: Provide oversight, resources and institutional support.
- 9.2. SDG Cell / Sustainability Committee: Coordinate implementation, monitoring and reporting.
- 9.3. Facilities & Maintenance: Operate and maintain water, wastewater, rainwater and drainage systems.

- 9.4. WATSAN: Provide technical expertise and support water and sanitation initiatives.
- 9.5. Academic Departments and Research Units: Conduct research, student projects and curriculum-linked activities.
- 9.6. Laboratories and Hospital Units: Ensure appropriate effluent, chemical and hazardous-waste management.
- 9.7. Faculty, Staff and Students: Practice responsible water use and report leaks, spills and pollution risks.
- 9.8. IQAC and relevant administrative units: Support documentation, evidence compilation and annual reporting.

10. Evidence, Public Disclosure and Reporting

Progress under this Plan shall be documented through institutional records, audit reports, laboratory test reports, water-use and reuse records, photographs, activity reports, meeting minutes, research outputs, student-project records, stakeholder communications and annual sustainability/SDG reporting.

- 10.1. Water and wastewater consumption, treatment and reuse records.
- 10.2. STP/ETP operation, maintenance and water-quality testing records.
- 10.3. Rainwater-harvesting and groundwater-recharge records.
- 10.4. Water-quality monitoring datasets and laboratory reports.
- 10.5. Waste, plastic and pollution-prevention records.
- 10.6. Photographs and reports of awareness, student and community programmes.
- 10.7. Research publications, projects and innovation records related to aquatic ecosystems.
- 10.8. Stakeholder meeting records, letters, MoUs or collaboration documents, where applicable.
- 10.9. Annual SDG 14.5.1 progress report and corrective-action records.

11. Public Disclosure and Website-Based Transparency

SRHU shall make the Plan and relevant progress information accessible through the University's official Sustainability/SDG section, subject to institutional approval and applicable disclosure procedures. Public reporting should emphasize measurable outcomes, year-on-year trends and documentary evidence. The University website already provides public information on water conservation, wastewater treatment, rainwater harvesting, groundwater recharge, waste management and relevant policies; these sources will support annual evidence compilation.

12. Review and Continuous Improvement

The SDG 14.5.1 Plan shall be reviewed annually by the designated sustainability mechanism. The review will consider monitoring results, audit findings, regulatory requirements, infrastructure performance, research findings, stakeholder feedback and emerging risks to water and aquatic ecosystems. Targets and activities may be revised where evidence indicates a need for stronger conservation, pollution prevention or monitoring measures.

13. Institutional Commitment

Swami Rama Himalayan University is committed to minimizing alteration of aquatic ecosystems through responsible water use, effective wastewater treatment and reuse, rainwater harvesting, groundwater recharge, pollution prevention, aquatic ecosystem monitoring, biodiversity protection, research, education and meaningful engagement with government and communities.

Through this SDG plan, SRHU seeks to strengthen its contribution to UN Sustainable Development Goal 14: Life Below Water while complementing its existing work under SDG 6: Clean Water and Sanitation and broader sustainability initiatives.

14. Reference to SRHU Website and Institutional Sources

- 14.1.** SRHU – Water Conservation & Management: <https://srhu.edu.in/water-conservation/>
- 14.2.** SRHU – Policy for Water Conservation: <https://srhu.edu.in/policies-guidelines/policy-for-water-conservation/>
- 14.3.** SRHU – Policy for Reducing Marine Pollution: <https://srhu.edu.in/policies-guidelines/policy-for-reducing-marine-pollution/>
- 14.4.** SRHU – Waste Management: <https://srhu.edu.in/sdg-waste/>
- 14.5.** SRHU – Policy for Climate Action for Sustainability: <https://srhu.edu.in/policies-guidelines/policy-for-climate-action-for-sustainability/>
- 14.6.** SRHU – Sustainability / Green Campus information: <https://srhu.edu.in/sustainability-initiatives-for-green-campus-2/>