Policy on Water Reuse, Conservation and Sustainable Water Management

1. DOCUMENT METADATA

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2. POLICY FRAMEWORK

2.1. Purpose & Objective

SRM University-AP is committed to the efficient and responsible management of water across the University. This Policy establishes an institution-wide framework to reduce avoidable water consumption, maximise the safe and feasible reuse and recycling of water, manage wastewater appropriately, support rainwater harvesting and maintain measurable evidence of water use and reuse. It sets requirements that the University shall implement; it is not limited to facilities or technologies currently installed.

This Policy supports UN Sustainable Development Goal 6 (Clean Water and Sanitation) and is aligned with the water-management and pollution-control requirements of the Government of India and the State of Andhra Pradesh, including those of the Central Pollution Control Board (CPCB), the Andhra Pradesh Pollution Control Board (APPCB) and the Central Ground Water Authority (CGWA).

The objectives are to:

- Maximise reuse and recycling of water across the University wherever technically feasible, safe, beneficial and permitted by applicable requirements
- Prioritise water conservation and efficient use before considering additional water supply
- Establish campus-wide measurement and reporting of water use, wastewater treated and water reused, using meters, estimates or other documented methods appropriate to the system
- Promote the safe reuse of treated wastewater and suitable greywater for non-potable applications, including toilet flushing, landscape irrigation, cleaning and cooling where appropriate
- Include rainwater harvesting in water-reuse accounting when collected rainwater is used beneficially, while distinguishing reuse from rainwater that is only harvested or recharged

SRM UNIVERSITY-AP * Andhra Pradesh, India-522240 *

- Maintain water-quality safeguards, prevent cross-connections with potable-water systems and ensure compliance with applicable laws and standards
- Integrate water efficiency and reuse into new buildings, renovations, landscaping, procurement and campus operations
- Ensure 24x7 availability of free, safe and clean drinking water to everyone on campus
- Increase awareness of sustainable use, conservation and reuse/recycling of water among the campus community and nearby localities
- Contribute to groundwater recharge and the improvement of groundwater levels
- Safeguard the ecological integrity of receiving water bodies through pretreatment, compliant discharge and avoidance of discharge near sensitive ecosystems
- Provide auditable records and annual performance review

2.2. Scope of Application

This Policy applies across all University-controlled premises and activities, including academic schools, departments, laboratories, hostels, residential facilities, administrative offices, canteens, food courts, healthcare and sports facilities, landscaping, construction and renovation, utilities, outsourced agencies and other campus units. It applies to students, faculty, staff, support personnel, contractors, vendors, service providers and visitors.

The requirements apply regardless of the source of water or the treatment technology used. Existing infrastructure may be used where it meets this policy; the University shall identify and address gaps where adequate measurement, treatment, reuse or documentation is absent. The Policy also extends to awareness, outreach and collaboration activities carried out with nearby communities, schools, NGOs, government agencies and other institutions.

2.3. Definitions & Glossary

- Water conservation: Reducing water demand and avoidable losses through efficient use, behaviour, maintenance and water-saving technologies.
- Water reuse/recycling: Using water again for a beneficial purpose after collection, treatment or appropriate preparation. This may include treated wastewater, suitable greywater and harvested rainwater that is used.
- Wastewater: Water generated from domestic, laboratory, food service, cleaning, utility or other campus activities that requires appropriate management before discharge or reuse.
- Greywater: Relatively low-contamination wastewater, such as from wash basins, showers or laundry, that may be treated and reused where appropriate.
- Treated wastewater: Wastewater treated to a quality suitable for its intended reuse or authorised discharge.

SRM UNIVERSITY-AP
Andhra Pradesh, India-522240

- Water reuse rate: The proportion of water reused during a defined period, calculated using a documented and consistently applied method and clearly stated denominator.
- Potable water: Water intended to meet applicable drinking-water quality requirements.
- Non-potable use: A use not intended for drinking, such as toilet flushing, landscape irrigation or suitable cleaning/cooling applications.
- Rainwater harvesting: Collection and storage of rainfall or its conveyance for groundwater recharge. For water-reuse reporting, collected rainwater shall be counted as reused only when the University can document its beneficial use, consistent with the reporting methodology.
- Accredited laboratory: A testing laboratory accredited by the National Accreditation Board for Testing and Calibration Laboratories (NABL) or recognised by the competent government authority.
- Condensate and RO reject water: Water collected from air-conditioning condensate and the reject stream of RO/filtration units that can be collected and put to beneficial non-potable use.
- Stormwater: Rainfall runoff from roofs, roads, walkways and open areas that may be collected, conveyed, stored or recharged.

2.4. Policy Statements

1. Water management hierarchy: The University shall follow a water-management hierarchy: (i) avoid unnecessary demand and losses; (ii) improve efficiency; (iii) reuse and recycle water safely; (iv) use rainwater and other suitable alternative sources where feasible; and (v) manage remaining wastewater through authorised treatment and discharge routes.
2. Maximise water reuse: The University shall identify and evaluate opportunities to reuse and recycle water across campus and shall maximise reuse wherever technically feasible, safe, environmentally appropriate and permitted by applicable requirements. Decisions not to reuse a potential water stream shall be supported by a reason such as water quality, health and safety, technical limitations, cost-effectiveness or regulatory restrictions.
3. Campus-wide water-use measurement: The University shall establish a campus-wide system to measure and consolidate water use from relevant sources, including municipal/mains supply, tankers, groundwater or other extracted sources, and other sources where applicable. Metering shall be installed or improved where practicable. Where direct measurement is not currently possible, a documented estimation method shall be used until measurement can be implemented.
4. Measurement of water reuse: The University shall measure the volume of water reused across the University, including treated wastewater and other qualifying reused water streams. Measurement shall cover the whole campus to the extent

Andhra Pradesh, India-522240

practicable, not only selected facilities. Reuse quantities shall be measured using dedicated meters where feasible or calculated using documented, transparent methods based on flow, operating hours, pump capacity or other suitable data. Estimates shall be identified as estimates and assumptions retained.

5. Reuse inventory and water balance: The CLM Office shall coordinate an inventory of water sources, major uses, wastewater streams, treatment/reuse routes and measurement points. A periodic water balance shall reconcile water supplied or extracted, water treated, water reused, water discharged and material losses where data are available. Unexplained discrepancies shall be reviewed.

6. Wastewater treatment infrastructure: The University shall provide and maintain appropriate wastewater collection and treatment arrangements, including STP(s) or an authorised equivalent, as determined by campus needs and applicable requirements. Treatment capacity and technology shall be determined by engineering assessment. Systems shall be operated under documented SOPs and maintained to support safe reuse and compliant discharge. Treatment capacity shall be reviewed periodically against campus population and wastewater generation, and optimised where required. Treated effluent shall meet the standards prescribed by the CPCB and the APPCB, and valid consents and authorisations (including Consent to Operate for the STP) shall be maintained. Where required to achieve the quality needed for the intended reuse, tertiary treatment such as filtration, activated carbon or disinfection shall be considered.

7. Suitable non-potable reuse applications: Subject to treatment quality, risk assessment and applicable requirements, reuse opportunities may include toilet flushing, landscape and horticultural irrigation, cleaning, cooling systems and other suitable non-potable purposes. Reuse systems shall be designed and managed to prevent cross-connections with potable-water systems, and non-potable lines and outlets shall be identified where appropriate. Collection and reuse of air-conditioning condensate and RO/filter reject water for non-potable purposes such as cleaning, gardening and cooling make-up shall be evaluated, and the volumes recorded where they are reused.

8. Water quality and safety: Water shall be reused only when its quality is suitable for the intended use. The University shall define appropriate monitoring parameters, sampling locations, frequency, acceptance criteria and corrective actions based on the source, treatment process, intended use and legal requirements. Reuse shall be suspended or restricted where a water-quality failure creates a health, environmental or operational risk. Water-quality tests of drinking water and treated wastewater shall be carried out by an accredited laboratory at least once a year, in addition to routine in-house testing, and reports shall be retained.

9. Access to safe drinking water: The University shall provide free, safe and clean drinking water to all students, faculty, staff and visitors, with 24x7 availability through filtered/RO drinking-water points across the campus. Water filters, RO units and drinking-water storage tanks shall be cleaned and serviced on a documented schedule by qualified or certified service providers, and servicing records shall be retained.



10. Laboratory, chemical and hazardous effluent: Wastewater from laboratories, workshops and similar sources that contains hazardous, toxic or chemical contaminants shall be segregated and pretreated to remove such contaminants before it enters the STP or is discharged, in accordance with applicable hazardous-waste and environmental regulations. Such water shall not be reused unless it is demonstrated to meet the quality required for the intended use.

11. Healthcare and biomedical wastewater: Wastewater from healthcare facilities and any wastewater expected to be rich in microbial or biomedical contamination shall be pretreated and managed in line with the Bio-Medical Waste Management Rules, 2016 (as amended) before treatment, reuse or discharge, and shall not be reused until it meets the quality required for the intended use.

12. Rainwater harvesting and use: The University shall maintain and assess rainwater-harvesting and recharge systems. Where harvested rainwater is collected for storage and beneficial use, the volume used shall be recorded as water reuse/recycling where consistent with the applicable reporting definition. Rainwater directed only to groundwater recharge shall be recorded separately as recharge, not automatically counted as reused water. Rainwater-harvesting systems shall be designed and maintained to protect collected water from contamination (for example through covered or clean catchments, first-flush diversion and filtration), and surface and terrace runoff shall be conveyed by pipes or drains to recharge wells, pits or storage. The effect of recharge shall be monitored through groundwater-level readings at representative locations at least before and after the monsoon. Overflow or discharged rainwater shall not create health or safety risks for the public, the environment or water bodies.

13. Stormwater and site drainage: Campus roads, walkways and open areas shall be planned, where feasible, with drainage such as saucer drains and permeable surfaces to collect and convey runoff to recharge structures or storage and to prevent flooding and soil erosion.

14. Water efficiency and leak prevention: The University shall assess and implement suitable water-efficiency measures, including low-flow fixtures, sensor-based taps, dual-flush systems, leak detection, efficient irrigation, appropriate watering schedules and preventive maintenance, as feasible. Leaks, damaged pipelines and abnormal consumption shall be reported and addressed promptly.

15. Efficient pumping and storage: Overhead and ground-level water tanks shall be kept clean and used for supply, drip irrigation and horticulture. Time-controlled or automated pumping with overflow prevention shall be adopted for tank filling in campus buildings, and the use of solar-powered water pumps shall be assessed and adopted where feasible. Water-saving behaviour, such as using buckets instead of showers where practicable and closing taps after use, shall be encouraged.

16. Sustainable landscaping: Landscape planning shall consider native or drought-tolerant species, soil and seasonal conditions, efficient irrigation and the use of suitable reclaimed water. Freshwater use for landscaping shall be reduced where feasible without compromising safety or essential plant care.



17. Infrastructure planning and procurement: New buildings, renovation, landscaping and major procurement shall consider water efficiency, reuse potential, separate non-potable distribution where justified, metering and maintainability at the design stage. Projects shall document applicable water-saving and reuse provisions.

18. Roles of departments and campus users: All departments and campus units shall cooperate with the CLM Office in providing water-use and reuse data, reporting leaks, identifying reuse opportunities and implementing conservation measures. Contractors and service providers shall comply with relevant requirements in contracts, work instructions and site procedures.

19. Awareness and training: The University shall conduct periodic awareness and training activities for students, faculty, staff, contractors and vendors on responsible water use, reuse safety, reporting leaks and preventing water wastage. Training and campaign records shall be retained.

20. Partnerships and research: The University shall collaborate with local, regional, national and international bodies, NGOs, government agencies and academic institutions on water security, conservation and reuse, and shall encourage collaborative research on water, treatment and reuse technologies and on aquatic (freshwater and marine) ecosystems.

21. Targets and continual improvement: The University shall establish a baseline and measurable targets for water efficiency and reuse after reviewing verified data. Targets may include improved coverage of water-use and reuse measurement, increased safe reuse, reduced freshwater demand per campus population or activity, and timely resolution of leaks. Targets shall be realistic, periodically reviewed and reported with the underlying data.

22. Public transparency and evidence: The approved Policy and suitable non-confidential evidence of implementation shall be made publicly accessible through the University website. Supporting evidence may include the policy approval/review record, water-use and reuse methodology, annual aggregated data, treatment and water-quality records, infrastructure/process descriptions, and summaries of initiatives. Public claims shall be consistent with documented data and distinguish measured values from estimates.

23. No unlawful discharge: Untreated wastewater shall not be discharged unlawfully into the environment. All treatment, reuse and discharge activities shall comply with applicable regulatory requirements and authorisations. Any incident, treatment failure or water-quality concern shall be reported, investigated and corrected. Discharge shall not harm aquatic ecosystems and shall be avoided near sensitive ecosystems, wetlands or water bodies with fragile habitats. Source reduction, recycling and treatment shall be prioritised before any discharge.

2.5. Nodal Department and Responsibility

The CLM Office (Campus Life Management) shall be the central nodal department for coordinating water conservation, water reuse, water-use measurement and institutional records. Facilities/engineering, STP operators or service providers, procurement, departments and other units shall support implementation within their responsibilities.

- CLM Office: coordinate the campus-wide water inventory and balance; consolidate source-wise water use and reuse data; coordinate infrastructure planning, maintenance, monitoring, audits and annual reporting. Also coordinate community outreach, partnerships and research activities on water.
- Facilities/engineering and authorised operators: operate and maintain water supply, wastewater treatment, metering, distribution and reuse systems; retain logs, maintenance records and water-quality results. Also provide drinking-water systems, and service filters, RO units and storage tanks on schedule.
- Schools, departments, laboratories, hostels and other units: submit required data, identify local reuse opportunities, report leaks and follow water-efficiency and safety requirements. Laboratories and healthcare units shall segregate and pretreat hazardous or biomedical wastewater at source as required.
- Procurement/project teams: incorporate water-efficiency, metering and reuse requirements into relevant purchases, new buildings and renovations.
- All campus users and contractors: use water responsibly and report leaks, wastage, suspected contamination or reuse-system problems.

3. COMPLIANCE AND EXCEPTIONS

- Regulatory Compliance: The University shall comply with applicable national, state and local requirements concerning water supply, groundwater extraction, wastewater treatment, water quality, reuse and environmental protection, including relevant authorisations and consent conditions. The responsible office shall maintain a register of applicable requirements and approvals. Applicable requirements include, as relevant, the Water (Prevention and Control of Pollution) Act, 1974, the Environment (Protection) Act, 1986, CGWA guidelines, the Bio-Medical Waste Management Rules, 2016, and directions of the CPCB and the APPCB.
- Exceptions: A proposed deviation from a reuse requirement due to safety, water quality, technical limitations, laboratory needs or regulatory restrictions shall be documented with justification and risk assessment and approved by the competent authority. No exception may permit an unlawful discharge or unsafe reuse.
- Non-Compliance and Corrective Action: Non-compliance, incomplete reporting, unexplained data discrepancies, unsafe reuse or failure to maintain relevant systems shall be reported to the CLM Office and competent authority. Corrective actions shall have an assigned owner, due date and evidence of closure. Repeated non-compliance may result in administrative review or other action under university rules.
- Incident Reporting: Leaks, pipeline damage, treatment failure, suspected cross-connection, water-quality failure or other events affecting safe reuse shall be reported promptly. The responsible unit shall take immediate measures to control the risk, record the incident and document corrective action.

SRM UNIVERSITY-AP
Andhra Pradesh, India-522240

4. ROLES & RESPONSIBILITIES (RACI MATRIX)

Task / Activity	CLM Office	Facilities / Operators	Departments / Units	Contractors
Policy coordination and implementation	A	R	R	I
Campus-wide water-use inventory and balance	A	R	R	C
Water-reuse measurement and records	A	R	R	C
Operation and maintenance of systems	A	R	I	R
Water-quality monitoring and corrective action	A	R	C	R
Leak reporting and conservation measures	A	R	R	R
Training and awareness	A	C	R	C
Drinking-water provision, testing and filter/RO servicing	A	R	C	R
Laboratory and biomedical effluent pretreatment	A	R	R	C
Community outreach, partnerships and research	A	C	R	I
Annual review, targets and improvement plan	A	C	C	I

(R = Responsible, A = Accountable, C = Consulted, I = Informed).

5. DATA COLLECTION & MONITORING

Data to be Collected:

- Source-wise monthly water input, including mains/tanker supply, groundwater or other extracted sources, and rainwater collected for use, where applicable
- Campus population or other denominator used for water-use intensity, with the calculation method recorded

SRM UNIVERSITY-AP * Andhra Pradesh, India-522240 *

- Water treated and reused by stream and end use, including treated wastewater, greywater or rainwater where qualifying
- Water quality test reports, treatment operating logs, meter readings, estimates and estimation assumptions
- Water discharged, groundwater recharged and water losses where data are available, reported separately from reuse
- Drinking-water quality reports, filter/RO servicing records, STP effluent test reports, groundwater-level readings, laboratory/biomedical effluent pretreatment records, and community outreach, partnership and research records
- Water-saving initiatives, awareness activities, training, audits and project-level water-efficiency provisions

Key Performance Indicators (KPIs):

- Coverage of campus water-use measurement: proportion of major water sources/areas measured or estimated using a documented method.
- Total water input by source (m^3 per month and per year)
- Total water reused by source and end use (m^3 per month and per year)
- Freshwater use per campus population or another justified operational denominator.
- Percentage of wastewater treated and percentage of treated wastewater reused, where reliable data are available.
- Volume of harvested rainwater put to beneficial use, reported separately from rainwater recharged.
- Percentage of scheduled water-quality tests completed and percentage meeting applicable criteria.
- Percentage of drinking-water sources tested by an accredited laboratory each year and percentage meeting applicable standards.
- Groundwater-level trend at monitored locations (before and after monsoon) and number of rainwater-harvesting/recharge structures in working condition.
- Number of awareness, community outreach, training and partnership/research activities conducted and number of participants.
- Availability of a current approved policy, public evidence page, annual data summary and supporting measurement methodology.

The University shall define formulas, units, reporting periods, data owners and validation steps in a Water Reuse Measurement Register. The University shall avoid double counting the same volume as both wastewater reuse and rainwater reuse and shall not add rainwater recharge to reuse volumes unless the applicable reporting methodology explicitly treats it as reuse.

- Data Quality and Validation: CLM Office shall consolidate data at least monthly and review completeness, units, duplicate entries and material discrepancies. Direct

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meter readings should be prioritised where practicable. Estimates shall be labelled, the calculation method retained and estimates replaced with measured data when feasible. Annual totals shall be checked against source records and approved by the designated responsible official before public reporting.

- Audit and Review: The CLM Office shall coordinate periodic internal water-management audits and submit an annual consolidated review to the University administration. A full formal review and re-approval of the Policy shall take place at least once every three years, in addition to the annual implementation review. At least once a year, water-quality results shall be verified by an accredited laboratory.
- Record Retention and Public Access: Records shall be retained for at least five years, or longer where required by law or University rules. The approved Policy shall be published on the University website. A public-facing evidence page should, where appropriate, include the policy, revision/approval date, summary of the measurement method, annual aggregate reuse data and relevant non-confidential supporting evidence.

6. VERSION HISTORY

Version	Date	Author/Editor	Summary of Changes
1.0	20-03-2024	CLM Office	Initial Release

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