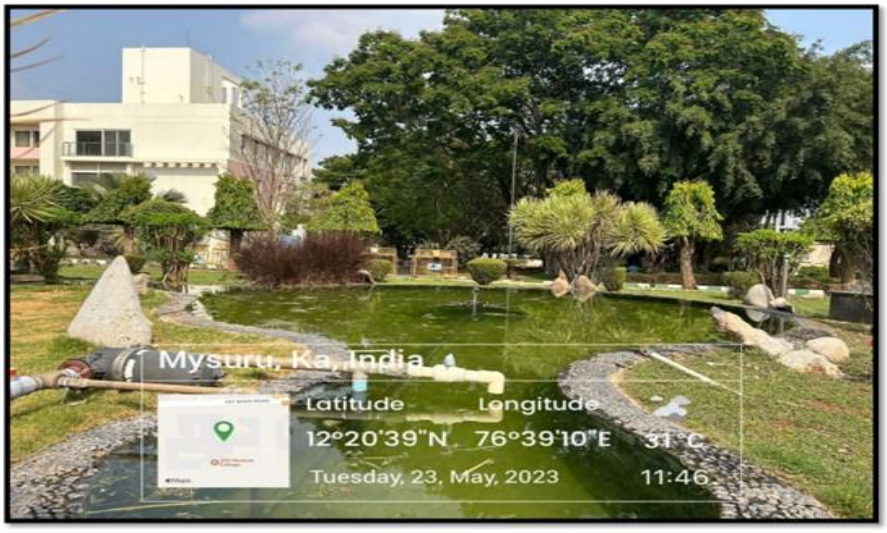
Pollution Prevention Measures for Protecting Campus Water Sources at JSS AHER

JSS Academy of Higher Education and Research (JSS AHER) has taken necessary actions and multiple approaches to avoid cross-contamination of polluted water into the water supply system on the campus. Wastewater generated from laboratories, clinical practices, and animal facilities is collected separately using proper wastewater drainage networks and treated at the source using a potential disinfection system. The JSS AHER campus has well connected drainage systems and open channel networks to avoid non-point water contamination sources to pollute the freshwater resources. Wastewater generated at the JSS AHER campus and other institutes is treated by advanced wastewater treatment processes including filtration, activated sludge process, biological aeration with Bio-tower, reverse osmosis, membrane filtration, and disinfection to remove contaminants effectively before the water is released into gardening and other purposes. Final disinfection is carried out to treat the specifically infected wastewater released from the laboratory and other sections of the campus.

SS Academy of Higher Education & Research (JSS AHER) has implemented robust processes and infrastructure to prevent polluted water from entering the water system, ensuring the protection of natural water resources and compliance with environmental standards. Supported by a comprehensive **Policy Guideline Document for Pollution Prevention** for Pollution Prevention, the institution employs advanced wastewater treatment technologies, proactive maintenance, and emergency response strategies to safeguard its water systems from contamination caused by accidents or incidents.



Water body at JSS MI Campus, JSS AHER, Mysuru

Policy Framework for Pollution Prevention

JSS AHER operates under a **Policy Guideline Document for Pollution Prevention** for Water Pollution Prevention, which outlines procedures to mitigate pollution risks, manage wastewater, and address emergencies. The policy ensures that wastewater generated across the campus, including from laboratories, kitchens, clinical facilities, and the local community, is treated effectively before disposal. The document is aligned with local, national, and international environmental regulations.

JSSAHER has a bound policy for regular inspection and maintenance of pipelines, sewage systems, open channels, and valve facilities to prevent leaks and spills that can compromise water quality and disrupt the institution's water supply. The maintenance team conducts routine inspections to assess the condition of pipelines and sewage systems, identifying any signs of wear, corrosion, or damage. These inspections include checking for blockages, leaks, and other potential issues that could lead to environmental contamination or water loss. Any identified problems are addressed promptly to ensure the integrity of the system. Open channels, which are vital for directing stormwater and treated wastewater, are regularly cleared of debris and sediment to maintain proper flow and prevent overflow. Valve facilities are also inspected to ensure they function correctly, allowing for effective water regulation and management. In addition to these inspections, JSS AHER invests in staff training to raise awareness about the importance of maintenance and prompt reporting of any issues. By prioritizing regular maintenance and inspections, JSS AHER not only safeguards its water resources but also reinforces its commitment to sustainability and responsible water management practices across the campus.

Processes to Prevent Polluted Water Entry

1. **JSS AHER conducts annual audits to assess the effectiveness of its pollution prevention measures:**
    - **Regular Assessments:** Potential sources of water pollution within the campus
    - Immediate Mitigation: Upon detection of pollution risks, measures such as chemical spill containment, leak repairs, and facility upgrades are implemented.
2. **Segregation of Wastewater Streams**
    - Wastewater streams are categorized based on their source and characteristics, such as sewage, laboratory effluents, and stormwater. Separate systems ensure efficient treatment and prevent cross-contamination.

3. **Wastewater Treatment Facilities**

1. **Effluent Treatment Plant (ETP)**

- **Primary Treatment:** Removal of large solids and physical impurities.
- **Secondary Treatment:** Biological and chemical processes to treat organic and chemical pollutants.
- Tertiary Treatment: Advanced polishing of treated water to meet stringent quality standards.
- Monitoring: Continuous testing of treated water ensures compliance with environmental regulations.

Liquid waste from laboratories.

The liquid waste generated from the clinical laboratories is disposed of safely by the hospital. there is an Effluent Treatment Plant (ETP) in the hospital to make wastewater from the hospital safe to dispose of in the general drainage system.

2. **Sewage Treatment Plant (STP)**

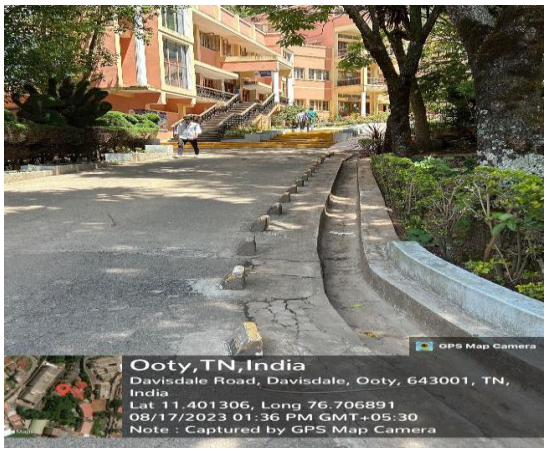
- A **25,000-liter per day (KLD)** STP employing **Submerged Aerobic Fixed Film (SWR)** technology treats wastewater from the Postgraduate Guest Hostel. Treated water is reused for gardening.

4. **Emergency Response Plans**

- JSS AHER maintains detailed emergency response plans to manage incidents of water pollution promptly. These plans include containment strategies, stakeholder notification, and immediate corrective actions.

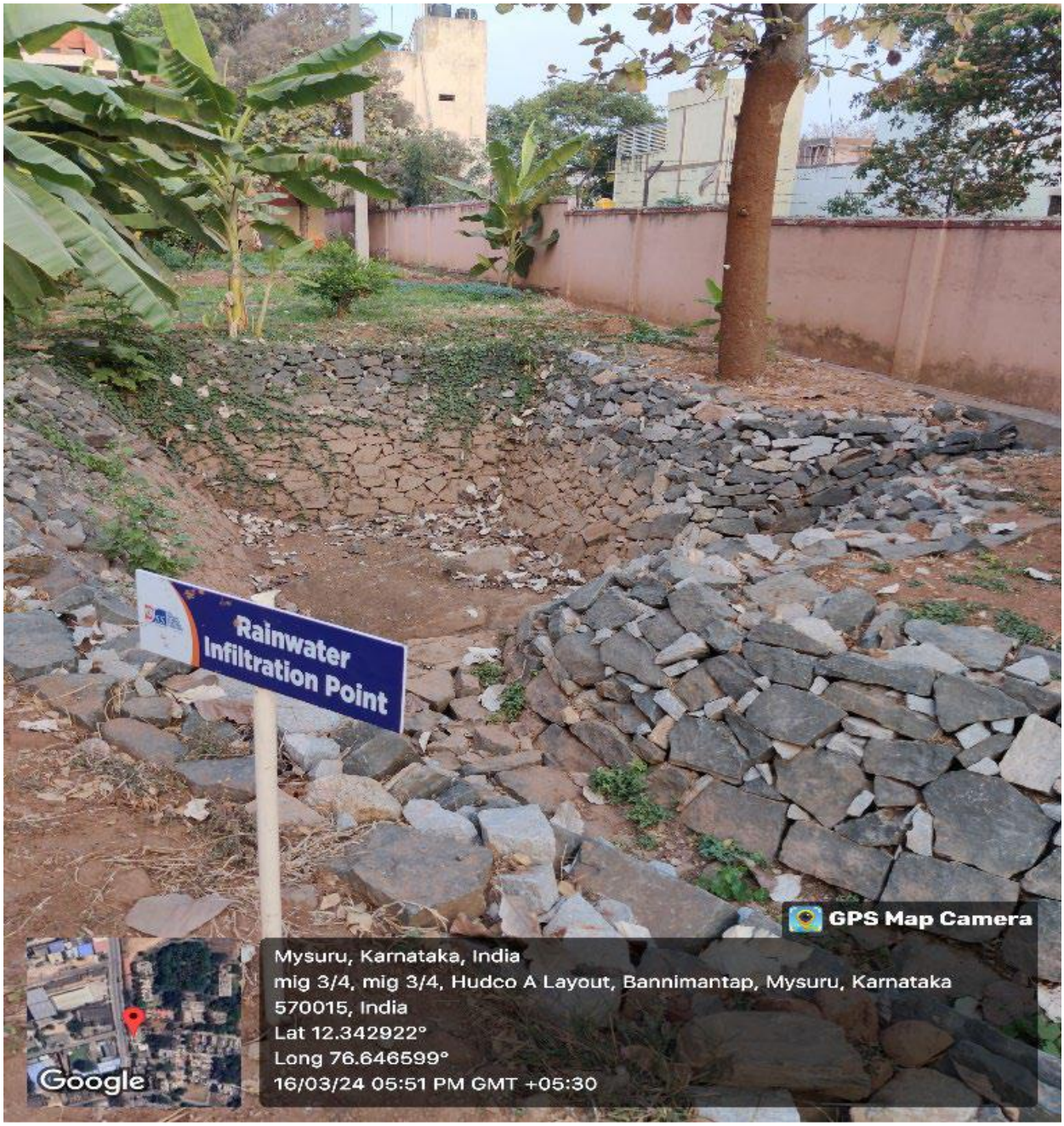
5. **Regular Inspection and Maintenance**

- Routine Checks: Pipelines, sewage systems, and drainage channels undergo regular inspections to identify leaks, blockages, or damage.
- Preventive Measures: Any issues detected are addressed immediately to maintain system integrity and prevent environmental contamination.
- Open Channel Management: Stormwater and treated wastewater channels are cleared of debris and sediment regularly to ensure proper flow.



Well-connected concrete drainage and open channel system at JSSAHER campus, Mysuru

Wastewater storage facilities at JSSAHER campus, Mysuru



Storm water storage facilities at JSSAHER campus, Mysuru

1. Monitoring and Testing
    - Continuous monitoring of water quality ensures treated wastewater meets safety standards before reuse or disposal.
    - Laboratory teams conduct routine sampling and analysis to detect contaminants and verify compliance with established benchmarks.
    - Annual Audit Process for Pollution Prevention

JSS AHER conducts annual audits to assess the effectiveness of its pollution prevention measures:

1. Data Collection: Gathering information on water management practices, treatment records, and regulatory compliance.
2. Policy Review: Ensuring policies align with best practices and emerging environmental standards.
3. Site Inspections: Visiting treatment facilities and pollution sources to verify proper functioning.
4. Non-Conformity Identification: Highlighting deviations from policies and suggesting corrective actions.
5. Recommendations and Updates: Incorporating audit findings to enhance policies and practices.

Supporting Infrastructure and Technologies

Wastewater Storage Facilities: Equipped with high-pressure pumps and storage tanks to handle wastewater safely.

Stormwater Management: Open channel systems direct stormwater away from freshwater sources to avoid contamination.

Rain water infiltration point at Hostel Block, JSS AHER, Mysuru

Advanced Treatment Methods: Activated sludge processes, bio-towers, and membrane filtration ensure effective treatment of wastewater.

Training and Awareness Programs

JSS AHER invests in regular training sessions for staff and students to:

- Promote awareness about pollution prevention.
- Encourage prompt reporting of leaks, spills, or contamination risks.

- Build capacity to handle emergency pollution incidents.

Outcomes and Impact

1. Environmental Protection: Comprehensive wastewater treatment minimizes the risk of pollution to natural water bodies.
2. Sustainability: Treated water is reused for gardening and landscaping, conserving freshwater resources.
3. Compliance: Adherence to regulatory standards reinforces JSS AHER's commitment to eco-conscious operations.

Conclusion

JSS AHER's proactive approach to preventing polluted water from entering the water system demonstrates its dedication to environmental sustainability and responsible resource management. With a well-defined policy framework, advanced wastewater treatment facilities, and regular monitoring, the institution ensures the integrity of its water resources while aligning with global sustainability goals.

These efforts underscore JSS AHER's commitment to being a leader in sustainable water management and pollution prevention.

POLICY PROCEDURE TO PREVENT POLLUTED WATER FROM ENTERING THE WATER SYSTEM AT JSSAHER

Objective:

JSS Academy of Higher Education & Research (JSSAHER) is dedicated to ensuring that polluted water does not enter the water system on its campuses. This policy procedure outlines the steps and measures to prevent the contamination of water resources.

1. Pollution Source Identification:JSSAHER will conduct regular assessments to identify potential sources of water pollution within its campuses.

2. Pollution Source Mitigation: Upon identification, immediate steps will be taken to mitigate pollution sources. This may include improving storage practices, containing chemical spills, and addressing any leaking or damaged storage facilities.

3. Segregation of Wastewater Streams: Wastewater streams will be segregated based on their source and characteristics. Separate systems will be established for sewage, industrial wastewater, and stormwater.

4. Wastewater Treatment Facilities: Dedicated treatment facilities, including Effluent Treatment Plants (ETP) and Sewage Treatment Plants (STP), will be maintained and operated to treat contaminated water before disposal.

5. Regular Inspection and Maintenance: All wastewater treatment and storage facilities will undergo regular inspection and maintenance to ensure they function efficiently and prevent leaks or spills.

6. Training and Awareness: Staff and students will be educated about the importance of pollution prevention and responsible water management. Training programs will be conducted to raise awareness of pollution sources and their consequences.

7. Emergency Response Plans:JSSAHER will develop and maintain emergency response plans to address water system pollution incidents promptly and efficiently.

8. Monitoring and Testing: Continuous monitoring and testing of water quality will be conducted to identify any deviations from established standards.

9. Reporting and Accountability: If any pollution incident occurs, it will be reported promptly to the relevant authorities and internal stakeholders. Accountability measures will be in place to address the incident and prevent future occurrences.

10. Compliance with Regulations: The institution will strictly adhere to local, national, and international environmental regulations and standards to ensure responsible water management and pollution prevention.

11. Annual Audits: JSSAHER will conduct annual audits of its pollution prevention measures and water management practices to evaluate their effectiveness and make necessary improvements.

12. Public Engagement: The institution will engage with the campus community and local stakeholders to foster a culture of eco-consciousness and responsible water use.

By implementing this policy procedure, JSSAHER demonstrates its commitment to preventing polluted water from entering the water system, ensuring the integrity of its water resources, and contributing to broader environmental and sustainability goals.

Annual Audit Process Supporting the Policy Procedure to Prevent Polluted Water from Entering the Water System at JSSAHER

The annual audit process complements JSSAHER's policy procedure for preventing polluted water from entering the water system. This process ensures that the policies and procedures are effective, identifies areas for improvement, and promotes accountability in maintaining the integrity of water resources.

1. Audit Planning:

The audit process begins with the formation of an audit team responsible for assessing the implementation of pollution prevention measures. The team includes experts in water management, environmental engineering, and relevant stakeholders.

2. Data Collection:

The audit team collects data on various aspects of water management, including pollution prevention measures, wastewater treatment, monitoring records, and compliance with regulations.

3. Policy and Procedure Review:

The audit team reviews the existing policy and procedure for preventing polluted water, ensuring that they are up-to-date and aligned with current best practices and regulatory requirements.

4. Site Visits and Inspections:

On-site visits and inspections of wastewater treatment facilities, storage areas, and potential pollution sources are conducted to assess their condition and compliance with the policy.

5. Data Analysis:

Data collected during the audit are analyzed to identify trends, areas of concern, and potential improvements.

6. Interviews and Feedback:

Interviews with staff, students, and relevant personnel are conducted to gather feedback on the effectiveness of pollution prevention measures and water management practices.

7. Identification of Non-Conformities:

The audit team identifies non-conformities, deviations from policy, or areas where the implementation of pollution prevention measures is inadequate.

8. Recommendations:

The audit team provides recommendations for corrective actions, improvements, and enhancements to the policy and procedures based on the findings.

9. Reporting:

A comprehensive audit report is generated, summarizing the audit process, findings, non-conformities, and recommendations.

10. Action Plan:

An action plan is developed to address the identified non-conformities and implement the recommendations. This plan includes timelines and responsible parties for each corrective action.

11. Follow-Up Audits:

JSSAHER conducts follow-up audits to verify the implementation of corrective actions and assess their effectiveness.

12. Communication and Accountability:

The results of the annual audit are communicated to the relevant stakeholders, ensuring transparency and accountability for water management practices.

13. Policy and Procedure Updates:

The audit findings and recommendations inform updates to the pollution prevention policy and procedure to enhance their effectiveness and alignment with sustainability goals.

Through the annual audit process, JSSAHER continually assesses and enhances its pollution prevention measures, ensuring that the policy and procedures are robust, effective, and responsive to emerging environmental challenges. This commitment to annual audits reinforces the institution's dedication to responsible water management and the prevention of polluted water from entering the water system.