Utilisation of Sustainable Water Extraction and Management Technologies

JSS Academy of Higher Education & Research (JSS AHER), Mysuru, demonstrates a strong institutional commitment to the sustainable extraction, treatment, utilisation, and conservation of water resources across its on-campus and off-campus locations. The University integrates environmentally responsible technologies and scientific water management approaches that minimise environmental impact, enhance water efficiency, and ensure long-term sustainability.

Water is extracted primarily from regulated groundwater sources, municipal supplies, and harvested rainwater, and is treated using scientifically approved disinfection and filtration technologies. The institution also collaborates with government and environmental agencies to promote sustainable water management practices in external locations, including villages, lakes, and river basins.

These initiatives are aligned with national and international sustainability frameworks, including **SDG 6 (Clean Water and Sanitation)** and **SDG 12 (Responsible Consumption and Production)**.

1. Sustainable Water Extraction & Treatment on Campus

a) Groundwater Extraction with Scientific Monitoring

JSS AHER extracts water from borewells and regulated groundwater sources for institutional use (academic blocks, hospitals, hostels, and residential areas). To ensure sustainability and safety:

- Extraction is closely monitored to prevent overexploitation
- Water usage is optimised through efficient distribution networks
- Leakage prevention and water auditing are practiced regularly

b) Water Disinfection and Purification Systems

The institution has installed **advanced water treatment and purification technologies** across the campus, including:

- **Reverse Osmosis (RO) plants** for providing safe drinking water
- **Chlorination systems** using Sodium Hypochlorite (12% strength)
- Routine testing of residual chlorine to ensure disinfection efficiency

The **Department of Community Medicine** has established a **Standard Operating Procedure (SOP) for water quality testing**, and regularly monitors water from:

- Hostels
- Guest houses

- Academic buildings
- Hospital premises

This ensures that water extracted and used is both **safe and sustainably treated**.

2. Rainwater Harvesting & Groundwater Recharge

JSS AHER has integrated **rainwater harvesting systems** in several campus buildings and open areas. These systems are designed to:

- Capture surface runoff
- Recharge groundwater aquifers
- Reduce dependence on external water supply
- Prevent surface water wastage

Rainwater harvesting plays a critical role in groundwater sustainability, particularly during dry seasons. This demonstrates the University's proactive approach to **aquifer recharge and sustainable resource replenishment**.

3. Sustainable Wastewater Treatment & Reuse

a) Sewage Treatment Plant (STP) Linkages

JSS AHER has established operational linkages with municipal and campus-based sewage treatment facilities, where wastewater generated within institutional premises is:

- Treated using multi-stage filtration and aeration
- Biologically and chemically purified
- Reused for **landscape irrigation and gardening**

This ensures:

- Reduced freshwater extraction
- Efficient reuse of treated wastewater
- Circular use of water resources
- Environmental protection

MPH students and faculty regularly visit the **Sewage Treatment Plant (STP), Mysuru**, strengthening understanding and implementation of **sustainable wastewater reuse practices** on campus and in extended institutional areas.

4. Sustainable Water Extraction and Conservation Off Campus

JSS AHER also supports sustainable water management in external locations through academic involvement, NSS programmes, and institutional collaborations.

a) River & Lake Conservation Initiatives

JSS AHER conducts and supports cleaning and conservation activities in critical water bodies such as:

- **Cauvery River – Srirangapatna**
- **Kukkarahalli Lake – Mysuru**
- Nearby ponds and village water sources

These activities reduce pollution, improve water quality, and enhance aquifer recharge, thereby making water extraction and availability in the region more sustainable.

The University's work at the **Cauvery River banks**, carried out in partnership with **EMPRI (Government of Karnataka)**, directly contributes to preserving a vital water source for millions.

5. Field-Based Learning Supporting Sustainable Water Systems

Students from the **School of Public Health** and **Department of Environmental Sciences** are exposed to sustainable water practices through visits to:

- **Vani Vilas Water Works, Mysuru**
- **Sewage Treatment Plant (STP), Mysuru**
- **Solid Waste Management Facilities**
- **Urban and rural water supply units**

These visits emphasise:

- Sustainable extraction and treatment methods
- Chlorination and filtration technology
- Urban water cycle management
- Safe distribution practices

Students further disseminate this knowledge in community settings through outreach, which strengthens regional water sustainability.

6. Institutional Mechanism: Department of Water & Health

JSS AHER has established a **dedicated Department of Water & Health**, reflecting a systematic institutional focus on:

- Responsible water extraction practices
- Conservation technologies
- Research in sustainable water systems
- Community training and awareness

This department anchors the University's long-term commitment to **sustainable water governance** both within and outside the campus.

7. Collaboration with Government & International Bodies

JSS AHER strengthens sustainable water extraction and management through partnerships with:

- **Karnataka State Pollution Control Board (KSPCB)**
- **Environmental Management and Policy Research Institute (EMPRI)**
- **SCOPE, Netherlands**
- **NAM S&T Centre**
- **Municipal Corporations**

These collaborations contribute to:

- Adoption of best practices in water extraction
- Policy-aligned water sustainability measures
- Regional water resource protection

8. Promotion of Responsible Water Use to Minimize Extraction Pressure

To reduce unnecessary water extraction, JSS AHER conducts:

- Water conservation signage and awareness campaigns
- Leak reporting systems
- Behaviour-change education
- Water-efficient practices in daily operations

By reducing wastage, the pressure on natural water sources is significantly minimised, contributing to **long-term sustainability of extraction sources**.

Conclusion

JSS Academy of Higher Education & Research adopts a **holistic and sustainable approach to water extraction and management**, combining:

- Regulated groundwater usage
- Rainwater harvesting and recharge
- Wastewater recycling and reuse
- Water quality monitoring and treatment
- Community-based conservation initiatives
- Government and NGO collaborations

These practices ensure that wherever water is extracted—whether on campus or through community-linked water sources—it is done in a **sustainable, responsible, and environmentally conscious manner**.

Through its innovative infrastructure, academic integration, research orientation, and community engagement, JSS AHER clearly demonstrates that it utilises **sustainable water extraction and management technologies on both on-campus and off-campus grounds**, making it a strong contributor to regional and national water sustainability efforts.