



BRAINWAR UNIVERSITY

**Annual SDG-6 Report
2023-24**

SDG 6: Clean Water and Sanitation
*Ensure Availability and Sustainable
Management of Water and Sanitation for
All*

SDG 6: Clean Water and Sanitation – *Ensure Availability and Sustainable Management of Water and Sanitation for All*

Context and Institutional Commitment

Water is life, and sustainable water management is the cornerstone of public health, agriculture, and urban resilience.

Brainware University recognises SDG 6 as both a scientific and moral responsibility. The institution is committed to ensuring clean water access, efficient sanitation, and wastewater reuse across its campus and surrounding communities.

Its actions address SDG 6 Targets 6.1–6.6, including:

- Universal access to safe water.
- Sanitation and hygiene education.
- Reduction of water pollution.
- Protection of local water ecosystems.
- Participation in water governance and awareness.

Institutional Policy and Infrastructure

Initiative / Policy	Objective	Status (2023–24)
Water Management Policy	Ensures sustainable use, rainwater harvesting, and wastewater recycling.	Implemented
Rainwater Harvesting Units	Recharge underground aquifers and supply irrigation water.	4 units functional
STP (30 KLD capacity)	Treats greywater for gardening and flushing.	Fully operational
Zero-Plastic Campus Drive	Reduce pollution in drainage and groundwater.	Ongoing

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Wastewater Monitoring	Periodic testing of campus outlets.	Formed 2023 under IQAC + Civil Engg.
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These systems together reduce freshwater consumption on campus by an estimated 35 % annually (Facilities Report 2024).

Research and Innovation in Water & Sanitation

Brainware University's scientific and engineering teams actively develop low-cost, eco-friendly technologies for water purification, waste management, and environmental monitoring.

Selected Patents (2023–24)

Title	Inventors / Dept.	Status	Relevance
A Method for Development of Hybrids Utilising Heterosis in Sweet Pepper	Dr Sourav Roy (AGRI)	Published – Oct 2023	Optimises crop water efficiency and irrigation demand.
A Novel Plant-Microbial Consortium for In-Situ Arsenic Bioremediation	Dr Puja Agnihotri et al. (BIO)	Published – Feb 2024	Detoxifies arsenic-contaminated groundwater.
An Automating Water Quality Assessment System Using IoT-Enabled Drone	Soma Mitra et al. (CSS)	Published – Oct 2023	Real-time monitoring of water pollution in rivers/ponds.
Sustainable Indoor Air Quality Improvement Using Aqua Algae-Based Filtration Systems	Dr Priyanka Sen Guha et al. (BIO)	Published – Feb 2024	Hybrid system for air & water purification.
Intelligent Waste Container with Real-Time Monitoring and Adaptive Route Planning	Ashwani Sharma et al. (CSS)	Published – Jun 2024	Smart waste management reducing leachate pollution.

Impact: These innovations link biology, AI, and engineering to achieve affordable solutions for clean water and sustainable sanitation.

Research Publications (2023–24)

Title	Authors	Publication / ISBN	Focus Area
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<i>Lead, Cadmium, and Chromium Contamination in Soil–Plant Systems: Impact and Risk Delineation</i>	Bhattacharya P. et al.	<i>Environmental Contaminants</i> (CRC Press, ISBN 9781003412236-3)	Heavy-metal mitigation in water–soil ecosystems.
<i>Reports of Actinomycetes to Degrade Microplastics</i>	R. Mukherjee & K. Biswas	<i>Microplastic Pollution</i> (Springer, ISBN 978-981-99-8357-5)	Microbial removal of plastic from aquatic systems.
<i>Water Pollution Control and Environmental Regulation in India</i>	Kaushik Banerjee et al.	<i>Environmental Evolution: Process of Ecological Change in India</i> (ISBN 978-81-970323-7-0)	Legal framework for water conservation.
<i>Digital Soil Mapping and Irrigation Precision Techniques</i>	B.P. Mondal et al.	<i>Remote Sensing of Soils</i> (Elsevier, ISBN 978-0-443-18773-5)	Efficient irrigation and soil-water management.

Together, these publications reinforce Brainware’s research emphasis on water quality, resource recycling, and pollution prevention.

Campus Practices and Sustainable Sanitation

Water Use Efficiency

- Flow-control nozzles installed in all academic blocks and hostels.
- Dual-pipe systems separate potable and non-potable lines.

Hygiene and Health

- 100 % hand-washing stations near all lab areas.
- Regular water-borne-disease awareness campaigns.
- Annual campus audit on hygiene.

Community Outreach and Education

Rural Clean-Water Drives

Students and faculty conducted awareness camps in five districts—Nadia, Hooghly, Howrah, Birbhum, and North 24 Parganas.

Activities included:

- Testing of tube-well water for microbial contamination.
- Demonstrations of low-cost bio-sand filters.
- Distribution of educational leaflets on boiling, chlorination, and hygiene.
- Implementation of Rain Water Harvesting Tanks

Swachh Bharat Campus Campaign

- *Clean Campus 2023* involved 400 student volunteers cleaning drainage channels and planting 250 trees.
- *Sanitation Awareness Week (October 2023)* – poster competition and panel on “Water Conservation in Daily Life.”
- Partnerships with local schools to build low-cost hand-wash stations.

Student Research and Innovation Projects

Project Title	Department / Year	Outcome / Impact
<i>IoT-Based Water Quality Monitoring System Using Sensors and Cloud Dashboard</i>	CSE – 2024 Final Year Project	Prototype deployed in campus pond.
<i>Comparative Study of Groundwater Nitrate Levels in Barasat Region</i>	Allied Health – Public Health Internship	Contributed data to district health authority.
<i>Low-Cost Bio-Filter Using Activated Carbon and Neem Charcoal</i>	Biotech UG Project	Demonstrated 95 % removal of coliforms in lab tests.
<i>Smart Toilet Design with Auto Flush and Solar Panel Powering</i>	Mechanical Engineering Capstone	Prototype installed in hostel block (pilot).

Partnerships and Collaborations

- West Bengal Pollution Control Board (WBPCB): technical consultation on wastewater management.
- NSS + Allied Health Sciences: rural hygiene and sanitation drives.

Conclusion

Brainware University's efforts under SDG 6 prove that sustainability can be achieved through a fusion of science, technology, and social responsibility.

From campus-scale wastewater recycling to student-led rural sanitation projects and biotechnological innovations in bioremediation, the University's actions demonstrate that clean water is not merely a resource—it is a shared trust.

By aligning research, infrastructure, and community education with SDG 6, Brainware University moves steadily toward its vision of a "Blue and Green Campus"—a model of responsible resource management for higher-education institutions across India.

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