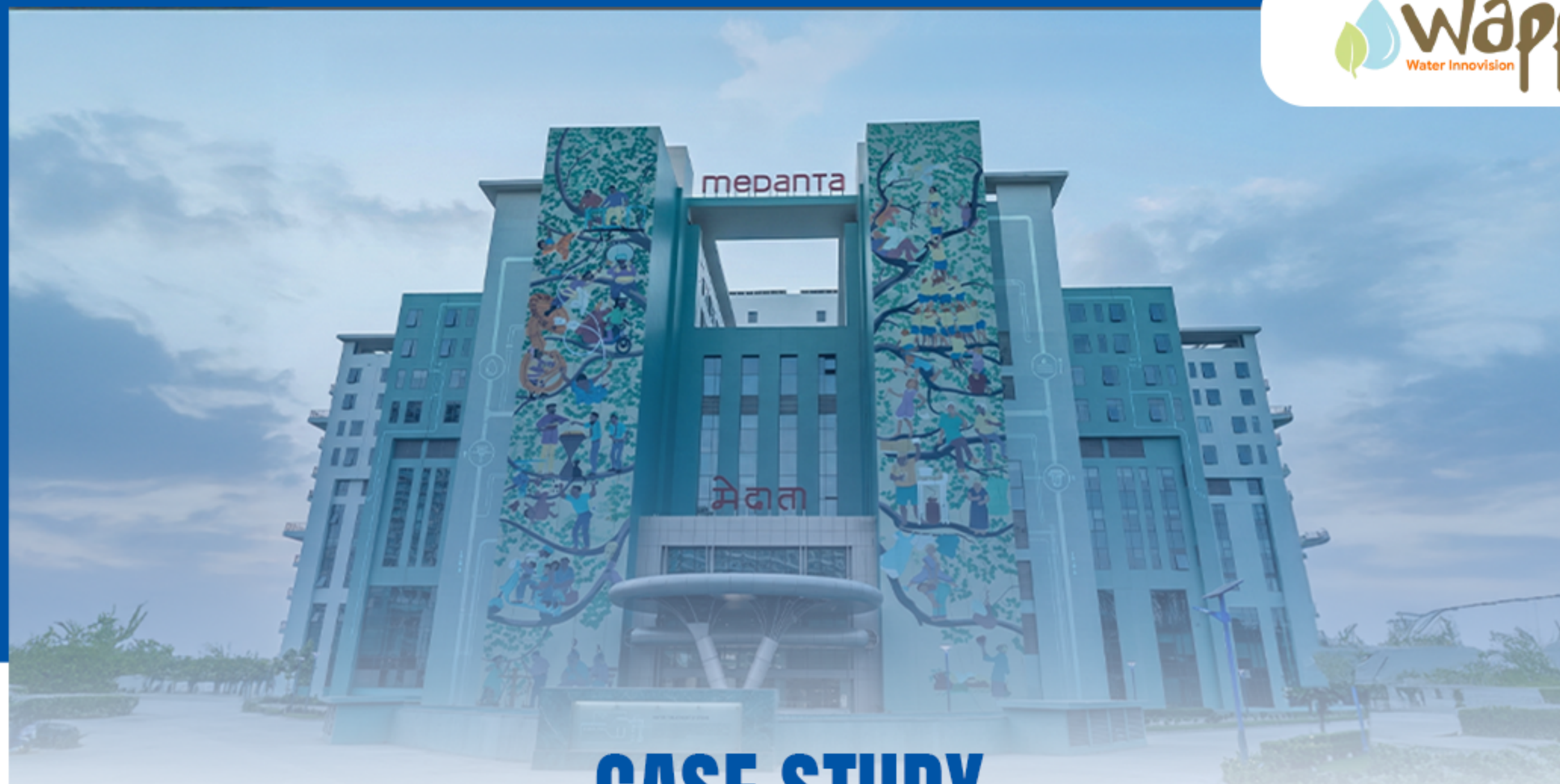




CASE STUDY

MEDANTA HOSPITAL - NOIDA

Integrated Water & Wastewater Treatment Infrastructure

Designed, Supplied & Implemented by
Enhanced WAPP Systems (India) Pvt. Ltd.

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PROJECT OVERVIEW

A leading multi-specialty healthcare institution in Noida undertook the development of a comprehensive water and wastewater treatment infrastructure to support its expanding medical facilities and sustainability goals.

To ensure environmentally responsible operations and regulatory compliance, an advanced integrated treatment solution was implemented covering sewage treatment, effluent treatment, water purification, automation, and long-term operational support.

Enhanced WAPP Systems (India) Pvt. Ltd. was entrusted with the design, supply, installation, commissioning, and operational support of the complete treatment ecosystem for the healthcare campus.



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TREATMENT CAPACITY

EFFLUENT TREATMENT PLANT CAPACITY

30 KLD (Kilolitres per Day)

The system treats
wastewater generated from

- ⌂ Laboratories
- ⌂ Operation theatres
- ⌂ Hospital utilities
- ⌂ Support facilities

Ensuring safe treatment
Before discharge or reuse.



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EFFLUENT TREATMENT SYSTEM IMPACT

At Medanta Noida, the 30 KLD Effluent Treatment Plant (ETP) safely manages complex hospital wastewater generated from laboratories, operation theatres, and utility areas.

Key Impact:

- ◀ Treats sensitive healthcare wastewater safely
- ◀ Ensures compliance with environmental discharge standards
- ◀ Supports reliable daily wastewater management
- ◀ Enables sustainable water practices within hospital operations

This essential infrastructure works quietly in the background – allowing the hospital to focus on delivering quality patient care while maintaining environmental responsibility.



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WHAT THIS SYSTEM ENABLES



The installed treatment system:

- ◀ Treats sensitive healthcare wastewater safely
- ◀ Maintains strict regulatory compliance
- ◀ Supports sustainable hospital operations
- ◀ Allows the facility to focus on patient care

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PROJECT SCOPE

The project covered end-to-end implementation including:

- ◀ Sewage Treatment Plant (STP)
- ◀ Effluent Treatment Plant (ETP)
- ◀ Water Treatment & Reverse Osmosis systems
- ◀ Electrical and automation infrastructure
- ◀ Online monitoring and compliance systems
- ◀ Operations & Maintenance support

All systems were integrated with ongoing hospital operations.



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TREATMENT PHILOSOPHY

The treatment design focused on:

- ◀ High treatment efficiency
- ◀ Operational stability
- ◀ Compliance readiness
- ◀ Water reuse capability
- ◀ Minimal operational disruption

Modern biological processes combined with **automation and monitoring** ensured consistent performance.



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SEWAGE TREATMENT SYSTEM

The STP uses **advanced biological treatment** technology designed specifically for healthcare wastewater.

Key features:

- Optimized footprint
- Energy-efficient operation
- Reliable treatment performance
- Capacity of 340 KLD

Ensuring safe and efficient sewage processing.



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EFFLUENT TREATMENT PLANT

The ETP handles specialized hospital discharge streams that require dedicated treatment.

Key features:

- ◀ Safe handling of complex effluent
- ◀ Compliance with environmental regulations
- ◀ Reliable treatment performance
- ◀ Portable & non portable application



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WATER TREATMENT & RO SYSTEM



A multi-stage purification system ensures high-quality treated water.

Applications include:

- Utility usage
- Non-potable applications
- Water reuse initiatives

Reducing dependency on freshwater resources.

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ELECTRICAL, CONTROL & MONITORING SYSTEMS

The treatment facility is supported by integrated electrical and automation infrastructure to ensure stable and efficient operations.

Key Components

- ◀ Integrated electrical control panels
- ◀ Automated plant operation controls
- Real-time system performance monitoring
- ◀ Compliance-ready reporting and operational transparency

These systems **enable reliable plant performance, faster issue detection, and improved operational control.**



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ONLINE MONITORING SYSTEM

Real-time monitoring enables:

- Continuous system performance tracking
- Compliance-ready reporting
- Faster issue detection
- Greater operational transparency

A key component for regulatory readiness.



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EXECUTION SCOPE

Project implementation included:

- ◀ Detailed engineering & system design
- ◀ Equipment supply and installation
- ◀ Electrical & instrumentation integration
- ◀ Testing and commissioning
- ◀ Performance validation
- ◀ Staff training and system handover

Execution was carefully managed within an active hospital facility.



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OPERATION & MAINTENANCE SUPPORT

O&M Duration:

1 Year Post-Commissioning

The support included:

- ◀ Dedicated plant operators
- ◀ Preventive maintenance
- ◀ Consumables management
- ◀ Performance optimization
- ◀ Compliance monitoring

Ensuring long-term reliability and efficiency.



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CHALLENGES & SOLUTIONS

Executing the project within an active hospital environment required careful planning and engineering.

Key Challenges

- ⌂ Continuous operations with zero downtime
- ⌂ Strict environmental compliance
- ⌂ Integration within an operational healthcare facility
- ⌂ Variable wastewater loads

Solutions Delivered

- ⌂ Integrated treatment system design
- ⌂ Automated monitoring and control
- ⌂ Reliable electrical infrastructure
- ⌂ Structured O&M support for stable operations



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SOLUTIONS IMPLEMENTED

To address these challenges:

- ◀ Integrated treatment architecture was deployed
- ◀ Automated monitoring systems installed
- ◀ Robust electrical and control infrastructure integrated
- ◀ Dedicated O&M framework implemented

Resulting in **smooth and reliable plant operation.**



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PROJECT OUTCOMES & IMPACT

The implemented treatment system significantly improved **water management** and **environmental compliance** at the facility.

The installed system supports:

- ⏪ Efficient wastewater treatment aligned with healthcare standards
- ⏪ Reduced freshwater dependency through water reuse
- ⏪ Improved environmental compliance readiness
- ⏪ Enhanced operational visibility through monitoring systems

This integrated solution **strengthens sustainable hospital infrastructure**, ensuring responsible water management while supporting future facility expansion.



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CONCLUSION

The Medanta Noida project demonstrates how advanced water treatment infrastructure supports modern healthcare facilities.

Through sustainable engineering, precise execution, and long-term operational support, the system ensures reliable water management — enabling the hospital to focus on its core mission:
Delivering quality patient care while minimizing environmental impact.